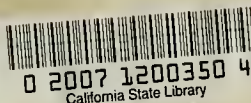


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The New Year.

Another year has dawned upon us, and the sound of the parting gun of 1867 is still ringing in our ears. How few, in the great circuit of the earth, realize that as each New Year comes and passes, another year is stricken from their term of existence, and that ere many more shall have passed, they will each have gone the last long journey. Yet so it is. We usher in the New Year with joy; our business affairs hurry us along through the intervening months, year by year, until we find the silver in our hair, the crow's-feet in our eyes, and the wrinkles in our face. Still we stop not to think, but plunge along regardless of all else save the accumulation of "money that enriches not." The poor miner, browed in summer by the sun's fierce rays, and chilled and cramped by frequent contact with Boreas and the chilly waters of the mountains in mid-winter, spends his years vainly, in an attempt to procure at "one fell swoop," that wealth which others are content to gather by small degrees. The end generally proves good the old saying, that "slow and steady wins the race."

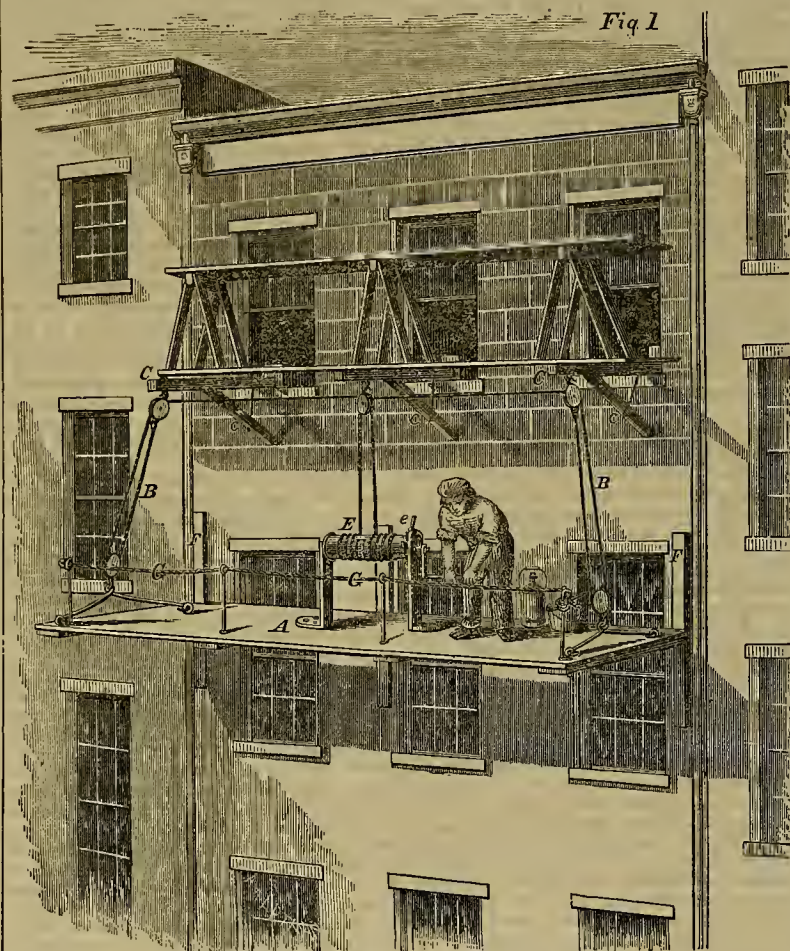
Yet all hail to the hardy miner! Without him California would still have been a dreary waste, and our beautiful valleys, with their now pleasant homes, would have still lain idle for want of a sufficient incentive to cause the farmers to locate in them. We might go back to the days of '48, and remind the reader how, when first the discovery of gold in our State was shouted throughout the nation and the world, the young, the middle-aged and the veteran, rushed to the gulches in our mountains, and how each year since, the golden stream has flowed from our borders and enriched the world, and California has grown to be a giant State. Far removed from her Eastern sisters, she overlooks the waters that trend to the setting sun, and wields an influence which at once makes her the star of the Union. But a new era is about to dawn; ere long the iron horse will be neighing on "the western slope," and his tread across our interior valleys and plains will bring with it new life to our State, and our people will be brought in close communion with the far East. Then truly will our motto shine forth in its appropriate fullness of import—EUREKA!

CONTINENTAL Life Insurance Company
302 Montgomery street, corner of Pine.

Devon's Improved Scaffold for Plasterers, Painters, etc.

It is often necessary to raise scaffolds by the sides of buildings for the purpose of re-

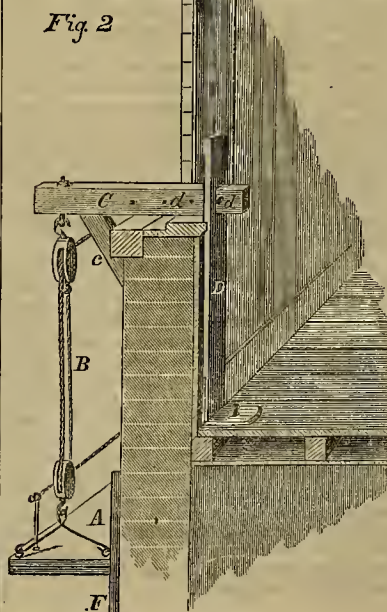
frames, then passing over an intermediate block in the center hooking-frame, and then descending, are fastened to the barrel of the windlass, E, and are thus operated in unison by the workmen turning the winch, which



DEVON'S IMPROVED SCAFFOLD FOR PAINTERS, PLASTERERS, ETC.

pairing, painting, stuccoing, etc., and it is sometimes found, where the repairs are not of serious moment, that the preliminary preparations and expense of erecting scaffolds upon the old-fashioned plans involved a greater cost than the repairs themselves. The improved scaffold that we represent is equally applicable to all the purposes mentioned, as well as any kind of labor that is required to be executed upon the walls of a house or other building. A great merit of this scaffold is, that it is light and portable, and can be easily put in place and readily elevated and lowered by a single individual, thus dispensing with the additional help of three or four persons that are required in the elevation of the old style of scaffold.

Fig. 1 represents the improvement, and the method of operating it by means of a winch and proper tackle. A is the platform on which the workman operates in performing the necessary labor. At each end of this platform are fastened iron hails, to which sheaves or blocks, with appropriate ropes, B, are attached, the ropes passing over other blocks fastened to the overhead hooking-



is held in place and prevented from unwinding by the pawl, e, catching into the ratchet-wheel upon the barrel of the windlass. The rope, G, is held in place upon the outer edge of the scaffold by iron standards, and affords greater security to the workman by preventing him from incautiously stepping off the platform through forgetfulness or carelessness.

The platform is held by the hooking-frames, C, Fig. 2, to which the pulleys by which it is raised and lowered are attached. These frames are supported by oblique braces, c, that are fastened to the horizontal bar of the frame and rest against the walls of the building, and are further strengthened by an iron rod that passes through both brace and bar. These bars pass over the window-sill and to the inside of the building, and are held in place by passing through a mortise in a vertical board, D, which is kept in place by a nail passing through the metal foot and being inserted slightly in the floor. The bar, C, is confined in place in the mortise of the board, D, by a pin that is inserted in one of the holes, d, after the bar is passed through the mortise. To accommodate it to the various thicknesses of the walls, a series of these pin holes are made, as shown at d, d. To avoid injury to the window-sills, a recess is made in the vertical board at the proper heights, in which the protruding portion of the sill enters.

As a security against the tipping over of the platform, by accident or unequal distribution of weight or material upon it, two braces, F, Figs. 1 and 2, are fastened to the side that rests against the building, and also answer the additional purpose of keeping the edge of the scaffold from coming in contact with and injuring the fronts of the window-frames and ornaments in the elevating and lowering of it.

As the scaffold cannot be elevated above the hooking-braces, and, consequently, not above the window-sills, of the upper story of the house, and in order to enable the workman to gain access to the more elevated parts of the building, a temporary platform is laid upon the hooking-frames that support the movable scaffold, and to gain further access to portions of the building that are still beyond the reach of the workman, a series of trestles are placed upon this temporary scaffold and an additional platform made upon the trestles, which arrangement can be repeated until the desired elevation is attained.

This improved scaffold is the invention of William A. Devon, of Port Richmond, N. Y., and was first described and illustrated in the *American Artisan* of Dec. 9, 1866.

HORSE RAILWAYS, within a few years, have become a most important feature in human locomotion in this country. It is estimated that, great as is the travel on the principal American steam railroads, that on our city horse railroads is immensely in excess. It is calculated that where 6,000 persons are transported on the former, 60,000 travel on the latter.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER SEVEN.

NOTE.—In the last paper it was observed that in place of a saturated solution of salt being soluble, like water, of absorbing double its volume of chlorine, that this property was diminished by one-third, and that certain future calculations were based thereon. It was omitted to state, however, that at a temperature of 131 deg. this property was still further reduced until the brine was not capable of retaining more than its own volume of gas, and the calculations immediately succeeding, were based on the latter.

SOLUBILITY OF SILVER IN COMBINATION WITH BRINE.

The capacity of an aqueous solution of chlorine for dissolving gold, increases from the boiling point down to about 48°; on the other hand, the action of a saturated solution of common salt in dissolving chloride of silver increases from the freezing point (32°), at which scarcely a perceptible trace is dissolved, up to the boiling point, (212°). At 50°, of the weight of common salt present in the solution, only 0.0017 part of chloride of silver is dissolved, which capacity is increased to 0.0068 at 212°. The solubility of common salt is very little affected at temperatures ranging between 32° and 212°, about 27 per cent. being susceptible of solution between those two points; 26, however, has been taken as the basis of several succeeding calculations, which, for a ton of water would amount to 520 pounds, an allowance sufficiently large, as will be seen by the succeeding quotation from

RIVOT'S ACCOUNT OF AUGUSTIN'S METHOD, in which the amount of salt in solution is not estimated at more than 22 per cent :

"About 500 kilogrammes (1,102 lbs) of the roasted and chloridized mattes while still hot, are placed in each of the dissolving tubs, which are arranged in line on an upper floor or raised platform. A solution of common salt, containing from 20 to 22 per cent. of salt, and heated to 131° Fb. by the aid of steam, is then thrown in from a trough which extends above. When the tubs are nearly full the supply is stopped, and the faucets at the bottom of the tubs are opened so as to allow a part only of the liquid to run off. When the depth of the solution above the matte is reduced to .0m .12 or .0m .15 (4 to 5 inches), the faucets are closed, and the whole is left undisturbed for one hour. These first manipulations are intended to thoroughly impregnate the mattes with the saline solution, and to dissolve out the greater part of the chlorides. The faucets are afterwards reopened, and all the liquid in the vats is allowed to run off. In order to complete the solution of the chloride of silver, and to wash the materials, a stream of solution of salt is allowed to run through the tubs for twenty hours without interruption, the faucets of discharge and supply being so adjusted that the mattes are kept constantly covered with the liquid to a very slight depth.

In order to better distribute the solution throughout the mattes, a disk of wood pierced with small holes, is placed upon the surface of the matte. It is estimated that six cubic metres in volume of saline solution are required to flow through each tub in order to dissolve and carry off the whole of the chloride of silver contained in the five hundred kilogrammes (1,102 lbs.) of matte. It may be ascertained when the washing is complete by receiving a portion of the liquid which runs from the faucet in a capsule, and plunging into it a well cleaned plate of copper; if there is no deposit of metal upon the surface, the washing may be regarded as complete. If, on the contrary, a film of silver is precipitated, the saline solution is allowed to run through the tub until, by a new trial, it is found that a metallic precipitate is no longer found upon the copper."

A cubic metre is equal to 35 cubic feet and a fraction, six of which, dismissing the fraction, would therefore amount to 210 cubic feet, or 6,562 tons (13,125 lbs.) which would suffice to hold in solution at 20 per cent. (2,625 lbs.) salt at 25 per cent.; 3,281 lbs. do., forming totals of 15,750 and 16,406 lbs., respectively, the weight of the solution required being thus from fourteen times greater in the one case, and fifteen in the other, than the weight of matte to which the solution would be applied. The present will be an appropriate place for explaining what I intended to convey in a former paper by what was termed "one operation," by which expression I intended, though not so explained, to convey what I conceived would be the commonly accepted meaning of the term, rather than as being confined to a strictly technical definition, which latter would be more comprehensive than the ordinary impression made by it on the great bulk of readers, who would conceive, generally, that by "one operation," little more would be meant than leaching the chloride of silver from the prepared matte by an amount of brine not more than sufficient to cover the matte to the depth of three or four inches, and two or three subsequent sprinklings, sufficient to wash out what had not been completely drained in the first instance, the latter being a circumstance that will always be required. It would never be imagined by ordinary readers that by one operation was meant a continuous supply of brine for twenty hours. In place, however, of such a very limited amount of brine, only, being required, the above quoted account by Rivot of Augustin's method, shows that no less than fourteen times the weight of brine, containing 20 per cent. of salt, is required at a temperature of 131°, in order to effectually leach out the chloride of silver present in the chloridized mattes of Mansfeld when they undergo this mode of treatment. It has already been explained that such mattes contain from eighty to one hundred and twenty dollars worth of silver per ton; if \$100 is accepted as the average, that sum will be above, rather than below the mark; which sum has now been adopted as approaching sufficiently near enough to the truth for illustrative purposes, and at the same time forms a convenient one for calculation.

Taking the data furnished by Rivot, it will be found that six cubic metres of water holding 20 per cent. of its weight of salt in solution, will give for the latter 2,265 lbs., now, as the soluble power of brine increases on the amount of salt in solution from .0017 at 50° to .0068 at 212°, it will not vary greatly from the truth to calculate the solubility of chloride of silver in such brine at .004. If the last statement is correct, and it cannot be very far from being so, brine of the quantity, quality and temperature under notice, would theoretically suffice to dissolve ten and a half pounds avoirdupois of chloride of silver, or 153 troy ounces. As 144 of chloride of silver is equivalent to 103 of metallic silver, it follows that 115.4 ounces of the latter ought to be present in the 153 ounces of the former, which might, theoretically, be leached out by such a solution of salt, and would be worth, at \$1.30 per ounce, \$153.62, or more than fifty per cent. above the value of the silver estimated as present in the Mansfeld mattes. At the first blush it will probably appear to one inexperienced in such matters, that a very wasteful method must be pursued in employing so large an excess of solution than what is theoretically required. The explanation is simple; the data previously given respecting the solubility of chloride of silver in solutions of common salt, are based upon experiments made with precipitated chloride of silver, the solubility of which is much greater than when formed in the dry way, or when found in the state of natural chloride, the two last named varieties being invariably much less soluble with all its solvents, whether ammoniacal, hyposulphites or alkaline chlorides, than when the same is formed by precipitation from solution; consequently more brine is required in order to dissolve out the chloridized silver contained in the matte.

In fact, practice has shown that the silver chloride formed becomes proportionally more insoluble in the exact ratio of the time occupied in the chlorination and the elevated character of the temperature to which the matte or ore may have been exposed; both are evils to be avoided, and causes the chlorinating roasting to be one of far greater nicety than is generally imagined. The evil just pointed out is not found so injurious (though still so in degree,) when amalgamation is the ultimate mode employed, because in the latter case a chemical, and I may therefore say, a galvanic action takes place between the iron or other metal employed to dechlorinate the silver present, which, to a considerable extent, neutralizes the ill effects so caused.

THE INCONVENIENT FEATURES OF THE BRINE METHOD WHEN APPLIED TO THE BENEFICIATION OF ORES CONTAINING ONLY SILVER.

One of the chief objections to the brine method must be apparent to the merest tyro, viz: the extraordinary amount of brine required to exhaust the chloride of silver, from any given quantity of ore, amounting, as above shown, on an ore of one hundred dollars value to not less than fourteen times the weight of the ore treated, even when the solution contains, of common salt, one-fifth in weight of the water present, and at a temperature of 131°. The value of the salt required as stock would be a considerable item, although, like mercury, the same material can be to a large extent employed repeatedly, to effect which, however, a certain cost for the power employed to raise the dechlorized brine into the boiler, where it would be reheated and concentrated, if necessary, prevails to again flowing by gravitation, over the same or fresh matte, in order to resume its soluble functions. The maintenance of a considerable part of such a mass of solution, as above noticed, partly at a boiling temperature, for the purpose of maintaining the contents of the lixivating vats at 131°, which, during the winter season in Nevada, would probably also require the accession of steam, would, where fuel is so expensive, form a not inconsiderable item. In addition, however, to the preceding, the mode to be adopted in concentrating the chloride from the solution has to be borne in mind.

Two modes can, and has heretofore been adopted; one consists in diluting and cooling the hot solution with water, by which means the greater part of the chloride of silver becomes precipitated. This mode, however, possesses the defect of requiring the subsequent evaporation of the diluting water, and consequently not adapted for the Sierra Nevada, in fact has been abandoned in Saxony, and the precipitation of the silver by means of some metal (copper,) generally is employed, in which case the latter metal is again recovered by precipitation by means of iron; the cement copper so obtained can subsequently be employed for the precipitation of silver in future lixivating, or if obtained more than such requirements demand, as occasionally occurs when the ores contain copper also, the excess can be melted into ingots as copper of the very best quality.

To the above I may add a third, which suggested itself while occupied in writing this series, respecting which I have thrown out a hint previously. As at 32° (freezing point,) brine does not retain chloride of silver in solution, the compound, therefore, could be precipitated by exposing a hot saturated solution to the low temperature named, and the freed brine at once pumped up to the boiler for future use.

In order to enable parties, so disposed, to make their own calculations of the benefits derivable from the hot brine method of lixivating chloride of silver, I will insert a few brief memoranda of the theoretic proportions soluble in given quantities at the temperatures of 50° and 212°. If 260 pounds of salt is dissolved in 1,000 pounds water at 50°, 0.442 pounds chloride of silver, or 6.4 troy ounces will be held in solution, but at 212° that amount would be increased to 1,768 pounds, or 25,783 ounces troy, these would be equivalent to 4.8 ounces of metallic silver in the first case, and 19.2 ounces in the latter, and in money value to \$6.44 in the former, and \$25.96 in the latter; in practice, however, it will be found that three or four times the quantity named as the soluble power, theoretically, would be required under the most careful and skillful management.

GOLD IN RUSSIAN ASIA.—The Shanghai News Letter, received by the China, has the following in reference to an alleged important gold discovery in Russian Asia:

"We are informed by a gentleman now in town, and lately from Passiet, that extensive gold mines have been discovered on Termination Island, about 20 miles from Port May, in Russian Siberia. Our informant has seen specimens of the ore, and pronounces the whole country particularly rich in gold. The Russians, however, are very jealous, and had driven away a party of some 600 Chinamen who were mining there. The gold is said to be found in rotten quartz, and also in surface diggings."

It is a fact, known to but few, that over forty million gallons of sorghum syrup are made in this country annually.

SOURCE OF THE FERTILITY OF THE NILE. The remarkable fertility of the waters of the Nile, in Egypt, was said by Humboldt to be caused by slime, the product of fish.

On the Amount of Chlorine Gas in a Hot Solution of Common Salt.

BY DR. LANSZWEERT.

EDITORS PRESS:—Prof. Rowlandson admits, in his article published in the MINING AND SCIENTIFIC PRESS, December 28th, "that the maximum absorption of chlorine by water takes place at a temperature of about 48° Fah., from which, up to the boiling point (212°), this absorption property gradually diminishes, as the temperature increases, so that when boiling heat is reached, it may be regarded as nil." In his article published in your paper of December 7th, he states that "it has been proposed to obtain gold and silver by the same operation, when employing Augustin's mode, by impregnating the hot solution with chlorine, which, it has been asserted, would have the effect of dissolving the gold present, also." In that article, no reference was made to the calorific degree of the hot solution to be used; it is only in his article of December 28th, that he names 131° Fah. as the temperature assigned by Rivot. We are thus to infer that the Professor means, by hot solution, a solution of 131° Fah.

Now, without the least danger of being scalded by such a solution, or of being offended by his petulant remarks, I do not see that his article has given me the information asked for. One volume of water, at the ordinary atmospheric temperature, absorbs two volumes of chlorine gas; and as one cubic inch of water, at 62° Fah., weighs 252.45 grains, and one cubic inch of chlorine, at the same temperature, weighs 0.766 grains, 30 fluid ounces of water (14,400 grains) will require two volumes, or 60 fluid ounces of chlorine (87.4 grains) for its saturation; or one ounce of water at 62° Fah. will take up only about three grains of chlorine.

Then, if one ounce of water, at 62° Fah., holds only three grains of chlorine, what quantity will it hold at 131° Fah.?

The Professor gives 131° Fah. as the temperature of the lixiviating solution; but there is another point to be taken into consideration, viz: that this solution is poured on the roasted ores still warm (*encore chaudes*, Rivot) from the furnace. That still warm, at least if in excess of 131° Fah., must necessarily increase the temperature of the solutions, and further diminish the amount of chlorine, if any is held in solution at this increased temperature.

The reason for lixiviating the ores, still warm, is based on the fact, first noticed by Wetzler (who recorded it simply for its scientific value), that the amount of chloride of silver which brine will take up, depends upon the quantity of salt present, and the temperature of said brine. Thus, brine at 32° dissolves only an almost insensible amount of chloride of silver; at 50°, 0.0017 of the weight of common salt present will be taken up, while at 212°, its capacity has increased to 0.0068 of the salt in the brine.

Referring again to the Professor's article of December 7th, he says, in speaking about the hot salt solution with chlorine, "I have no knowledge how far any practical results have followed from the above suggestions," and again, in the same article, under the caption of "An Episode": "With the exception of a case, which will shortly be alluded to, I had not received any information, prior to the appearance of the above notice by Mr. Kustel, that chlorine, in association with a solution of common salt, had ever been employed on a working scale for separating gold and silver from their ores at one and the same time. * * Though I suspected that something of the kind might have been done at St. Helens, Lancashire, England, about sixteen years ago!" Of course, *Albion* all over. It is quite curious, if not somewhat difficult, to follow the Professor's digressions about brine; he states, furthermore, "I am induced to believe that brine, impregnated with chlorine, or containing some compound which would evolve that gas, was employed in the process at St. Helens, and renders it quite probable that it is from that establishment that this method first emanated. I have been led to this opinion, since Mr. Kustel has stated that Von Patern and Roeszner have adopted this method."

In conclusion, I have only to again reiterate my query of the 14th ult. as to the quantity of chlorine which may be retained in a hot solution of salt, with which to treat that class of ores containing an argentiferous gold alloy, as described in my article of that date.

Mechanical.

Band Saws.

The endless or band saw has not heretofore received that attention from American mechanics, which its merits deserve; although in England it has long been quite extensively used for wood work, and has more recently been employed on iron, particularly for locomotive work. As there may be some of our readers who have not met with a saw of this kind, we will proceed to describe an American invention, which was exhibited at the late fair of the American Institute, and subsequently illustrated and described in the *Scientific American*.

The saw is operated in connection with a table, as is usual with small circular and reciprocating saws. The band saw, as its name implies, works through this table by being passed over two pulleys of equal diameters, the one over-head and the other underneath the table, precisely like an ordinary band or belt. The saw, of course, cuts continuously, the same as a circular saw, but makes a constant down stroke. The work to be presented to the saw is placed upon the table, directly beneath a guide, which keeps the saw steadily in place, and which drops down on a rigid support from the ceiling or frame work overhead. This guide is readily adjustable, as is also the upper pulley, over which the saw passes, and by which the saw may be tightened, when, by expansion or otherwise, it becomes slackened. The faces of the pulleys are covered with vulcanized rubber, resting on a bedding of strong cloth, by which a sufficient adhesion is given to the same to screen its action as a belt, without slipping. The pulleys are moreover made with flanges, like railroad wheels, so that when the work is pressed against the teeth of the saw, it is kept in position on the pulleys by its back bearing against these flanges. The saw cannot therefore be pressed off the pulleys, as a belt running on ordinary pulleys would be by pressing against its edge. It is also secured against any possibility of running off from the front of the pulleys, to the danger of the operator.

The ends of the saw are joined by means of silver solder, used in connection with a clamp, made especially for the purpose. The original temper of the plate is not affected by the process of soldering, and there is no more danger of its parting at the point of junction, than at any other portion of its length.

The great advantage claimed for the band saw over the reciprocating saw, so extensively used on work where the circular saw is inapplicable, there is no lost time in its operation; and no effort is required to keep the work on the table, as that is done by the action of the saw itself. Neither is there any need of appliances or effort of any kind to clear away the sawdust from the top of the table as the work progresses, as all the dust is carried downwards, as with the circular saw.

The saw exhibited at the Institute, was claimed to run at the rate of 4,000 feet per minute; and it is said to have been proved by actual experiment, that it was capable of doing four times as much work, in a given time, as could be done with a reciprocating saw. Its work was moreover done very smoothly, and required less labor in finishing than when done by the reciprocating saw. It was pronounced by competent judges, to be a very simple and economical machine. It has recently been patented by Messrs. First and Prybil, 175 Hester street, New York city. In the machine alluded to, both the pulleys, as well as the table and all the other appliances, are connected with a single iron frame, so that it may be readily moved and set up whenever needed. The driving pulleys are placed upon the axle of the lower band pulley, which works under the table.

TESTS OF RANSOM'S PATENT STONE under the British Government, at Bombay, have been made, and, though under very unfavorable conditions as regards the supply of proper material, molds and knowledge of the manipulation, have resulted in a very favorable report.

A STEAM BUGGY has been running with success, for some time past, on the roads about Boston. It attains considerable speed, and appears to be light and entirely under control of the driver.

Rolling Heavy Armor Plates.

We made mention a week or two since of the rolling at the Atlas Iron Works in England, of an immense armor plate, twenty feet long by four wide, and fifteen inches thick. The process of rolling was minutely described, but not the preparatory process of heating.

It appears that one of the greatest difficulties in rolling such immense masses of iron, so as to effect a perfect welding throughout (without which the plates are of but little practical use), is to obtain a good and uniform heat among the several slabs of which the single plate is subsequently formed—that is, a heat which shall penetrate to the center of the mass, and thereby secure the perfect weld desirable, without being so great and long continued as to partially fuse the upper layers. This difficulty is most ingeniously overcome at the Atlas Works in the following manner:

Between each layer of slabs a number of cubes of highly carbonized iron, about one inch square, are placed, so as to keep each slab apart from the others. This allows the whole mass of flame and heat to circulate between them, so that all the slabs attain the same degree of heat at almost the same time. As the intense ardency of the furnace increases, these cubes are gradually melted. In the act of melting, they restore, to a certain degree, the carbon which has been burnt out of the slabs by the previous process, and as they melt, allow each slab to settle down; when, like a cement, their melted metals form a perfect weld. It is not till this has been effected, and the new perfect plate is heated to an almost blinding whiteness, that the mass is withdrawn from the furnace to be rolled.

The plate referred to was pronounced sound and perfect by good judges; but it was to be thoroughly tested by being cut, and possibly submitted to the mere practical trial of being brought under the fire of Palliser shot from a 9-inch gun. This plate was turned out from the same furnace and molds as those employed for making the ordinary $4\frac{1}{2}$ and 9-inch plates; so that no new mechanical appliances have been brought to bear in accomplishing this great feat of iron work. Such plates have not been heretofore rolled, because there is no call for them, for the simple reason that no ship yet built, could carry such an armor; but it is now possible that they may be employed in casing forts, where weight of metal is no objection—cost and resistance being the only considerations to be taken into account. There are some three or four rolling mills in England that are capable of turning out the same size of plates. Indeed the Cyclop Works had already turned out a sample plate 14 inches thick; only one inch less than the one which has furnished the text for this paragraph.

AN IMMENSE CASTING.—We find in *Engineering*, the following interesting account: Not long since, Sir John Brown & Co., of the Atlas Works, Sheffield, required an accumulator cylinder 36 feet in length. The outer diameter was 36 inches, the inner 26 inches, for a 24-inch ram, and the total weight was to be about 25 tons. Several makers tendered for the casting, in four nine feet lengths; but Messrs. Tannet, Walker & Co., successfully undertook to cast it in one. They dug a pit in their foundry floor 34 feet deep, and built up a mold in strong cast iron boxes, carefully jointed together. The casting was poured so that the lower half rose from the bottom, the upper half being afterwards poured from the top. The ferrostatic head of a column of iron thirty-six feet high is about one hundred weight per square inch; so that the mold had to be very strong. The iron, before entering at the bottom, fell upon a wrought iron plate, which broke the shock of the fall and secured the steady rise of the metal in the mold. This remarkable work may be compared, with some reason, to a cast iron gun 36 feet long and of 26 inch bore—a gun heavier than the 15-inch Rodman. The casting was completely successful, and the cylinder is now in use at the Atlas Works.

Scientific Miscellany.

Modern Scientific Investigation.

The address of Prof. J. S. Newberry before the recent session of the American Association for the Advancement of Science, as published in the *American Naturalist*, is a very interesting and suggestive publication. His subject was "The Method and Tendencies of Modern Scientific Investigation." The lecturer, in admitting the fact and utility of the modern spirit of scientific "progress," alluded as follows to the present increase of skepticism growing out of such investigations: "In view of the ruthlessness with which the man of the present removes ancient landmarks, and profanes shrines hallowed by the faith of centuries, it is not surprising that many of the good and wise among us should deplore a liberty of thought, leading in their view inevitably to license; and men in over this wide-spread skepticism as an evil and insensible disease that has fallen upon the minds and hearts of men." The speaker then proceeded to give a brief analysis of this modern lack of faith, in which he throws out much encouragement to those who take a despondent view of the possible effects of the investigations and discussions which occupy so large a portion of the time and thought of the men of science of the present day, and asserts that, for himself, he is far from sharing the general alarm which it excites in the minds of many good men.

He presented a gloomy picture of the low moral and social condition into which the world fell, from the height of Grecian and Roman civilization, to that which existed some 400 years ago; and drew much encouragement from the fact that out of that chaos of darkness has grown, as if by magic, all our modern civilization, with its individual liberty and dignity; all our civil and religious freedom; our philanthropy and benevolence; our diffused comfort and luxury; our good morals and improved manners, and all the splendid achievements of modern scientific investigation.

The speaker took a brief review of the origin and progress of science. In *metaphysics* he thinks but little progress has been made. The metaphysicians of the present day are still debating the same questions which divided the rival schools of Greece, and with as little harmony of opinion as was manifested when these intangible problems absorbed the great minds of Plato and Aristotle.

With regard to *physical sciences*, with the exception of astronomy, no one had an existence previous to the time of Bacon. There was much in earlier times that was called science; but it constituted far more error than truth. The weeding out of this mass of error by the earlier modern scientists, was a far more difficult task than that of clearing the Augean stables. In accomplishing this work on the rigid, philosophical basis necessarily adopted, it was inevitable that the investigations should have been narrow and materialistic in their tendency. In this process, all that was contrary to nature, (supernatural or spiritual) was carefully excluded on the ground that the mathematical or logical faculty of the human mind was capable of solving all the problems of the universe.

The most modern inquiries, however, have fully demonstrated the fallacy of this position. To illustrate: We cannot conceive of the beginning or end of time, nor the idea of illimitable space. Yet we all admit the one must have had a beginning or otherwise; while the other must be either limited or limitless. We cannot conceive of the limits of space; or, if we bound it, we immediately seek to fill the void beyond. Such considerations bring us face to face with infinity; and we are compelled to recognize the fact that the infinite exists without the power to comprehend it, mathematically or logically. When forced to such an admission, nothing but perverseness can shut out the acknowledgement of Divine intelligence.

The speaker, in this relation, most appropriately remarks: "It seems to me that, in

the reach and thoroughness of this material investigation, we may hope for such demonstration of the reality of things immaterial as shall produce a deeper and more universal faith than has ever yet prevailed.

Through this very spirit of skepticism which prevades the modern sciences, we are compelled to exhaust all material means before we can have recourse to the supernatural. When, however, that is done, and men have tried patiently and laboriously, *but in vain*, to refer all natural phenomena to material causes, then, having proved a negative, they will be compelled to accept the existence of truth not reached by the touchstone, and *faith* will be recognized as the highest and best knowledge. * * *

"Already," as it seems to me, scientists have reached the walls of adamant—the insurmountable—that surrounds them on every side, and, ere long, we may expect to see them return to that heap of chaff from which the germs of modern science were winnowed, with the conviction that there were left buried other germs, of other and higher truths than they gleaned; truths without which human knowledge must be a dwarfed and deformed thing."

We regret that we are unable, for want of space, to give more extended extracts from this most interesting address.

ATOMS AND MOLECULES.—The distinction between *atoms* and *molecules* is invested with considerable significance; the former being applied to that amount of an element which is represented by its atomic weight, and the latter to the smallest amount which can exist in an uncombined state. It is found, for example, that the molecule of hydrogen, oxygen and chlorine, consists of two atoms of each element, and it is accordingly termed a diatomic molecule. The molecules of bromine, iodine, fluorine, nitrogen, sulphur and selenium, consist likewise of two atoms, or are diatomic. The molecules of mercury, cadmium and zinc contain but one atom, and are accordingly termed *monatomic*. The molecule of oxygen, in the condition of ozone, is *triatomic*. Phosphorus and arsenic, *tetrameric*, and sulphur, to which, as well as to oxygen, two distinct molecular weights are accorded, is *hexatomic*.

"ATOMICITY OF ELEMENTS" is a new term in chemistry, by which is meant, the relative powers of the atoms of different elements to combine with, or displace from combinations, the atoms of other elements. It is also called their atom-fixing and atom-displacing power, or their *quantivalence*. One atom of chlorine, for example, is equivalent to one atom of hydrogen, since it can be substituted for it in combination. The atomicity of chlorine or its quantivalence, is therefore taken as one, and chlorine and other elements, like fluorine, bromine, potassium, silver, having also an atomicity of one, are called *monads*. In like manner, one atom of oxygen or zinc can be substituted for two atoms of hydrogen, one atom of boron for three atoms of hydrogen, one atom of carbon for four, one of nitrogen for five, and one atom of sulphur for no less than six atoms of hydrogen.

BENEFICIAL EFFECTS OF THE POISON OF BEES, WASPS AND FISHES.—Dr. Teliupe P. Desmarter, a French savant, has been experimenting upon insects, fishes, etc., and has ascertained that the poisonous matter contained in wasps and bees, being insulated, destroys rheumatism and neuralgia, and that of the *cerceris*, in England popularly known as sand-wasps, produces insensibility,—local anesthesia. He also found that the poisonous matter of various fishes, including the weaver fish, which is common to the coasts of England and France, cures paralysis; and from these facts he supposes that the poison contained in the *Thalassophryne*, a new species discovered in San Francisco Bay, a couple of years ago, will also cure various diseases.

ART.—Marshall, so well known by his line-engraved portraits of Washington and Lincoln, has nearly completed a similar plate of Gen. Grant, on which he has been engaged throughout the summer. The engraving is after a life-size portrait painted by Mr. Marshall himself—a strong likeness, painted in a mellow color and in a broad style.

New Boiler Works.

We took a look into the boiler shop of Messrs. Baurhyte, McAfee & Spiers, on Howard street, a few days since, where we noticed two large boilers in process of construction for the Pacific Rolling Mill Company. These boilers are each 24 feet long by 48 inches diameter, with two internal flues of 16 inches diameter each. They will also be supplied with two mud-drums of same diameter and 16 feet long. These boilers are designed to utilize the heated air and unconsumed gases passing from the iron furnaces, which will be employed at the works, thereby affecting an important saving of fuel. At some of the iron establishments in Europe, boilers are heated exclusively by this usually wasted heat and fuel.

In addition to the above, we also observed two fire-box boilers, which are being made for the California Steam Navigation Company, and intended for a boat in the up-river trade. This boiler is eighteen feet long, over all, with five feet diameter of shell. It will contain about 200 tubes, two inches diameter.

The same firm are also building another fire-box boiler for the Messrs. Barron Bros. of this city, which is seventeen feet long over all, shell forty-four inches diameter. This boiler is intended for a boat now being built at Cozzen's shipyard, North Beach, which will be employed in and about the Bay. The boat will be stern-wheel, the engines for which are being built by Messrs. Keep, Blake & Co., of Stockton.

All of the above-mentioned boilers are being constructed of the best CH. No. 1 Am. flange iron. We are pleased to note these evidences of prosperity in this new firm. Mr. Spiers, who has lately connected himself with this firm, is a man of large experience and a most thorough machinist. All the members of the firm are working men, and fully understand their business.

There is no class of mechanics in the world who should be more thorough and conscientious in their work than boiler-makers; for on the work of none depends, to such an extent, the lives and safety of great numbers of human beings. A faulty plate of iron, placed, for the sake of a little gain, in a steamboat boiler, may cause the loss of hundreds of lives; or the unskillful or imperfect riveting, or other workmanship about the same, may send scores to an untimely grave. We have faith to believe that in no part of the world are these responsibilities more fully realized, and nowhere is more pains taken in avoiding all possible contingencies, than among the boiler-makers of this city. It may be instanced as a somewhat significant fact, that since the destruction and wearing out of the boilers, used in early times in this State, all of which were brought hither from abroad, there has been a most notable falling off in steamboat disasters. May we not justly attribute this most welcome fact to more skillful and conscientious work, for which the public are indebted to our own home artisans?

POULTRY FOR HOGS.—Nearly two tons of turkeys were hauled out to one of the hog ranches on the Potrero, a few days since, to be fed to swine—the market men preferring to make such a disposition of them, rather than sell them at lower than the regular market rates, which they could have done a day or two earlier. How much better it would have been to have delivered, at least a moiety of them, to the orphan asylums and other charitable institutions in the city, before it became necessary to make them food for swine, and after it became evident that buyers would not take them off their hands at the ruling rates.

HAWAIIAN RECIPROCITY.—Our neighbors of the Sandwich Islands are seeking to establish a reciprocity treaty with Japan as well as with the United States. If the treaty is concluded, it is expected that it will be transcribed to the Hawaiian Government by commissioners who will repair thither in a Japanese man-of-war. In such a case, we presume that the vessel will visit this port also, to impress the outside barbarians of California, with the formidable nature of the floating thunderer of the Great Tycoon.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

71,301.—**GANG-PLOW.**—James Harris, Santa Clara County, Cal.:

I claim, 1. The rocking bar E, to which the plows are attached, and by which they are turned over upon the frame.

2. The elevating lever F, the adjustable seat I, the gauge-screw J, the adjusting-screws K K, the lever-rest M, in combination with the rocking-bar E, as described, and substantially as set forth.

71,335.—**WATER-WHEELS.**—H. W. Shipley, Portland, Oregon:

I claim, 1. The combination of the parts D E E', when constructed and arranged in relation to each other as shown and described.

2. In combination with the foregoing, the arms or buckets B, constructed and arranged as described.

3. The gates H, hinged at the outer extremities of the guides F, and adapted to close inwardly, and provided with arms i i, in combination with the links f and ring G, when constructed and arranged in the manner and for the purpose specified.

4. In combination with the inwardly-closing gates H, and guides F F, the water-passages between the latter, when constructed so as to diminish in height from their outer to their inner ends, substantially as and for the purpose specified.

71,693.—**ANIMAL-TRAP.**—Geo. W. Brown, of Sacramento, Cal.:

I claim the arrangement of the tipping-plats as described and for the purpose set forth.

71,718.—**CAR-COUPLING.**—Mordecai Disney, of San Francisco, Cal.:

I claim, 1. A car-coupling, having a movable retaining-lip C, clutch b, and the detaching-lever E, the whole constructed and operating substantially as and for the purpose herein described.

2. The automatic catch d, constructed and operating substantially as and for the purpose described.

The object of this invention is to provide an improved self-coupling attachment for railroad-cars, by the use of which the danger of going between the cars is avoided. The cars may be easily disconnected at any time by means of a lever, while in case of an accident, as when some cars are thrown from the track, they may be instantly disconnected from those remaining in place. This device may also be used where only a part of the cars are fitted with it, as the ordinary link is used, and they will connect with the common couplings equally as well as with each other.

The coupling is constructed by attaching to the car a hollow bar, with an expanded mouth at one end to receive and direct a link. The upper side of the bar is a movable plate or lip, kept down by a spring from behind. A tongue of steel projects upward, from the lower lip of the bar, to a sufficient height, to hold the link, the upper lip rising to admit it, and immediately closing after it passes the tongue against which it rests. A lever is very simply arranged, by which, at any time, the cars may be easily disconnected.

71,747.—**GRADING AND EXCAVATING-MACHINE.**—T. C. Hammond, Nicolaus, Cal.:

I claim, 1. The construction of a plow with an angular upright standard, having a sole-plate or wing, and a mold-board and share, together with all the connecting parts, substantially as described for the purpose specified.

2. A double plow of the above description, all of the different parts of which are reversed and pointing and facing in opposite directions, and connected by a continuous beam and furrow-bar.

71,749.—**FIELD-DERRICK.**—Isaac J. Hattabough, Santa Clara County, Cal.:

I claim, 1. The double sheaves for the operating-line.

2. The pivots and plates at top and bottom of the pole, for the guys and pole-swivel.

3. The combination of the sheaves H, with the pivots to plates I I, in combination with operating-rope E, pole A, arm B, adjuster D, guys J, to make a simple and complete combination for a derrick for field purposes, as described, and substantially as set forth.

71,827.—**PLOW-WHEEL.**—J. B. Webster and Robert Baxter, Stockton, Cal.:

We claim the hoard or plates a, fig. 1, in combination with wheel, as and for the purpose hereinbefore described.

RE-ISSUES.

2,809.—**HARVESTING-MACHINE.**—David J. Marvin, Stockton, Cal.:

I claim, 1. In a combined header and thrasher, so pivoting or hinging the enter-frame upon the main axle a that it can be moved longitudinally, and also raised or lowered at pleasure, substantially as and for the purpose specified.

2. In a combined header and thrasher, having its cutter-frame mounted or hinged as above described, the combination and arrangement of the bar a', posts b' b', pulley d', cord c', and crank-rod N, substantially as and for the purpose herein set forth.

3. The arrangement of the sickle-plate h, aprons 2 and 3, corrugated feed-roller B, threshing-cylinder P, fan S, inclines o p, straw-carrier D, screen E, conveyor F, and elevator G, substantially as described.

4. In a combined heading and threshing-machine, as above described, the arrangement of the lever A, swinging axle a, and gear-wheels b' Q, for the purpose of throwing the threshing and cleaning-mechanism into or out of gear, substantially in the manner specified.

QUERY.—"N." asserts that two steam engines, having their cylinder constantly supplied with steam at fifty pounds pressure per inch, are to each other, in effective capacity, approximately as the areas of their pistons, multiplied by the stroke; hence, that a steam engine having a cylinder of double the length of a second one, of equal diameter, will have approximately double the effective capacity.

"W." asserts that they are to each other, in effective capacity, approximately as the areas of their pistons only, that the horse power of each is the same. Who is right? Please answer and oblige

TWO READERS.

"N." is right, provided the engine having a cylinder of double the length of a second one, of equal diameter, makes the same number of strokes per minute, in which case the piston will travel at twice the velocity, and consume twice the amount of steam; and *wrong*, provided the pistons of each engine travel the same number of feet per minute, in which case they will give the same power.

"W." is correct on the basis of the pistons traveling an equal number of feet per minute, and also correct according to common usage.

NOTE.—The power of a steam engine is determined by the area of the cylinder, the average pressure of steam throughout the stroke, and the velocity of the piston, in feet, per minute, and variable in the direct proportion of either of these; thus:

1st. The area of the cylinder and pressure of the steam being the same, the power will be as the velocity of the piston in feet per minute.

2d. The pressure of the steam and velocity of the piston being the same, the power will be as the area of the cylinder.

3d. The area of the cylinder and velocity of the piston being the same, the power will be as the pressure of the steam.

In calculating the power of a steam engine, the length of the stroke is only regarded as a means of ascertaining the velocity of the piston in feet per minute.

CONFUSED.

A morning cotemporary considers it "a source of confusion" that the fire-alarm bells are made to strike, not in exact unison, but following one another at short intervals of time, "with just enough difference to utterly confuse a person endeavoring to count the strokes." Our neighbor makes the "difference" about half a second; at our place of residence, the difference is several full seconds, but we never thought of complaining of the annoyance, for the simple reason that it is one of those things which can't be helped. The trouble does not originate from a difference in time of striking upon the different bells, but from the fact that the various points of observation are located at unequal distances from the several bells, so that the sound of the simultaneous striking reaches those points at unequal periods of time. It is a very simple problem in natural philosophy.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

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It is simple, concise, and well arranged. It seems to be a work of great value.—*John Sutt.*

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—*J. C. Felton.*

After as careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—*Wm. H. Hill.*

I regard it as one of the best treatises upon these important subjects—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—*F. W. Hatch.*

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the simplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text books.—*James Demmon.*

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—*Martin Kellogg.*

I recommend it to all those who wish to obtain a book that will give them details of the education of young men in America to express their thoughts and feelings in a clear, simple, and forcible manner.—*Caroline L. Alwood.*

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I believe the work will be a valuable and much needed addition to our school text-books.—*Hervon Perry.*

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This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—*Alta California.*

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Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Amador County.

Ledger, Dec. 28th: Last Monday was "clean-up day" at the Oneida mill, and a very handsome yield was the result. The amalgam was melted by Mr. Riching, of this place, and run into "bricks," worth a little over \$10,000 each. We did not ascertain how many tons of rock were crushed, but it was the proceeds of a run of 20 days with 40 stamps.

A company of miners have purchased Hartrum's garden, adjoining Volcano, for the purpose of mining it out. The price paid for the ground was \$6,000, in gold coin. They are now sluicing off the top dirt, and by spring it will be ready for taking out the gold. This is one of the richest pieces of mining ground in the State.

The Pioneer mine has been purchased by L. McLaine and Sorocco Brothers, and active operations will at once be commenced on it. They have made arrangements with Mr. Thoss, and he will work the rock in his mill by a process, known to himself, that never fails to extract all the precious metals contained in the rock.

Butte County.

Oroville Record, Dec. 28th: J. J. Buckius, at Brock's hardware store, and tin and sheet-iron manufactory, has just completed five hundred feet of thirteen inch pipe, for the use of the Oroville Mining Company's claim. From the superb manner in which Mr. Hewett is fixing up his claim for working, we infer that he has struck it rich in the bluff.

Calaveras County.

Chronicle, Dec. 28th: The recent violent storm has been the means of suspending all operations in quartz in this vicinity. Nothing can be done until the weather clears up and a bottom can be found to the roads.

San Andreas Register, Dec. 28th: William Irvine is getting into position a large lot of very heavy iron pipe, for the purpose of throwing sufficient water on his mining wheel, in order to keep his stamps in continual operation while he is pumping the water from his claim.

Inyo County.

Virginia Enterprise, Dec. 28th: We have been shown private letters from Cerro Gordo district which speak of the mines of that region as the richest ever seen east of the Sierras. The leads appear to widen as they are followed down, and veins but two feet wide at the surface expand to a width of eight feet at the depth of 60 feet. All the ore of the district must be smelted, and furnaces, instead of mills, are used for its reduction.

Mariposa County.

Mail, Dec. 24th: From Coulterville we have the following items: McKeo & Flanagan's new steam quartz mill started on Monday, December 9th. Everything works well, and the mill is crushing good ore. H. G. Coward's new quartz mill, on the North Fork of the Merced, commenced crushing. This mill is run by water power, two batteries of five stamps each. We understand that Mr. Coward is taking out good rock from the Marble Springs vein.

Nevada County.

Transcript, Dec. 25th: In consequence of the damage to ditches and flumes by the storm, mining operations are almost entirely suspended in the lower part of Bridgeport township. The heavy flume and iron pipe which carries water to the Buckeye Hill was blown down on Sunday, and on Monday all the ditches were empty in consequence of breaks above. In the San Joaquin Co's claims a heavy cave occurred, burying hose, pipes, etc.

Dec. 27th: Star's flumes at Little York were damaged to the extent of \$300 by the late storm.

Dec. 28th: Thirty boxes or about 400 feet of the flume in the bed of Greenhorn Creek, were carried away by the late storm. This is one section of the work which was not completed. The balance of the work is said to have stood the flood well.

In the vicinity of Moore's Flat, several extensive mining enterprises are being prosecuted with a fair show of success. The Kentucky Mining Co. have temporarily suspended work in consequence of the large quantity of water in their claims, and will resume operations in the spring. This Co. is sinking an incline for the purpose of striking the great gravel channel which Professor Whitney says enters the county at Snow Point. A mining company at Mount Zion, which has been running a tunnel for eight or nine years, struck upon excellent pay gravel a short time since, and the tun-

nel is now being pushed for the body of the channel. A project is on foot for sinking an incline through a heavy slide at Moore's for the purpose of opening the channel beneath it. The old mines about the Flat are yielding good returns, and when the new one is opened the gold yield will be considerably increased.

Dec. 29th: A considerable damage was done by the floods to the mining claims at Rocky Bar, near Washington.

The flume in Johnson's old claims, now owned by Kellum & Co., of San Francisco, were destroyed, and the cut closed up by a slide which occurred at Gopher's Point during the late storm. All the mining claims in the vicinity are shut off from their supply of water, with the exception of the Enterprise. The miners are talking of turning in a heavy head of water, and running off the dirt, so as to enable them to resume work.

Gazette, Dec. 25th: All the flumes connected with the mining claims at Red Dog were blown down on Monday night. All mining is suspended for the present.

Dec. 27th: The storm moved things around in this part of the country quite lively. The hoisting and pumping machinery, at the Leecompton mine, was carried off, together with considerable quartz, involving a loss of \$5,000 or \$6,000. The flume of the Nevada Company's quartz mill was damaged to the amount of \$200 or \$300. A large rock, weighing 75 or 100 tons, lying at the Nevada Co's dam, was rolled over by the force of the current. The sluices, derrick, and other fixtures in Leathe's diggings, at Stocking Flat, were swept off. His loss will amount to \$400 or \$500.

Mr. Whartley received a letter yesterday from the agent of the ditch company at Dutch Flat, who says several hundred feet of fluming on the Dutch Flat branch has been blown down, and the ditch otherwise damaged so that some weeks will be required to repair it.

Dec. 30th: The claims of Ashburn & Co., at Scotch Flat, were damaged to the amount of \$600 or \$700 during the late storms. Portions of their flume and pipes were carried away by the high water, while other portions were buried by the caving of the banks. The Bean Co's claims were damaged to the amount of about \$200. The claims on the opposite side of the creek were not damaged by the high water, but were rather benefited by the clearing out of the tailings and giving them a better fall.

Dec. 31st: Work on the Chalk Mountain Co's claims at the Cascades was not interrupted during the late storm, and their prospects continue to improve. Sately, the Secretary of the Co., offered a pair of gum boots to the first man who found a \$50 lump. A few days later, one of the workmen picked up a nugget weighing \$52. This was sent below, and the gum boots came up in due time. They frequently get prospects of \$10 and \$12 to the pan. Work is also progressing in the claims of Reidy & Co., but they have still considerable to do before their claims will be fairly opened.

Grass Valley National, Dec. 28th: The placer diggings in Mohawk Valley are doing well, some eight or ten companies are wintering in the valley—and three embryo towns are already located—Hardscrabble, Licksillet, and Stringtown. One of the companies wishing to raise a stake for Christmas, set their sluices, and after three or four hours cleaned up \$225, one piece weighing over one and a half ounces.

Dec. 30th: The Grass Valley Foundry has just completed the casting of a cylinder for the Eureka Co. The cylinder is 16 inches in diameter.

Placer County.

Herald, Dec. 28th: We saw three little specimens from the Perry & McGonigle claim this week "no bigger than a man's hand," that weighed a little over four pounds, 95 per cent of which was pure gold. This sort of ore is known to exist for a distance of 25 feet, and may continue for thousands. We have heard that buckets of this ore are sometimes quarried out that is too heavy for a stout miner to lift from the bottom of the shaft.

Anburn Stars and Stripes, Dec. 26th: We have just examined several large gold specimens, weighing from one-half to a pound each, which were taken from the Black Ledge. In a shift of eight hours, it is estimated that from \$10,000 to \$12,000 was obtained. The work is still going on without any apparent sign of giving out. This gold was found at the depth of 54 feet from the surface. This ledge is a decomposed mass of black quartz or rock, having gold all through it, much of which appears to have been melted and run into large masses of gold. It is situated in a field of quartz ledges more extensive than any other in the State, and most of the ledges are known to contain sufficient gold to justify the em-

ployment of capital to work them, with a certainty of ample returns.

Plumas County.

The Sawpit Flat correspondent of the *Downieville Messenger*, of Dec. 21st, gives the following items: The recent storm has given us an abundance of water, and the ditches are all full. Some of the companies are cleaning up pay dirt. The New York Co. have just finished. I am informed that they cleaned up 537 ounces, which amount will pay all losses sustained by the late fires, also the laborers for taking it out.

The Folland boys, of Richmond Hill, are doing well in their piping claims, piping day and night. These are all the claims washing up at present. Some parties who own piping claims in this place, have gone below for the winter, so that little more washing will be done here this winter for that reason.

The Eagle Co. have had some good prospects during the last week.

Sierra County.

Downieville Messenger, Dec. 21st: All of the hydraulic diggings in the northern part of the county have been running a full force of hands during the fair weather. The Docile mill was started on its regular work on the 12th inst. It runs very smoothly and crushes fast. It contains 10 stamps of 600 pounds each, and is driven by a Hurdly-gurdy water-wheel under 200 feet pressure of water.

The miners of Rattlesnake have made the most of the recent good weather, and have got a splendid start for the spring's work.

The Downieville correspondent of the *Marysville Appeal*, of Dec. 28th, says: The season has been very favorable for the miners, and until within two or three weeks all the river claims have been worked; at Eureka and Morristown, and in other hydraulic diggings, the miners have been busy at work with plenty of water.

During October and November considerable prospecting was done. On the Wehe and Tuhai Cain, good prospects were found, but work for the season was suspended. The Docile Co. and the Phoenix have very rich ledges, and both have new mills up. The Docile is hard at work pounding up rich rock. One of the most valuable ledges we have is owned by the Good Hope Co., but owing to the lack of means, the company have not as yet built a mill, although the ledge, as far as prospected, will warrant the outlay. It is now in the hands of a San Francisco party for sale for \$50,000.

The Brush Creek ledge, near the Mountain House, is without doubt the richest ledge in California. The company intend putting up a 30-stamp mill in the spring.

Yuba County.

Marysville Appeal, Dec. 22d: Messrs. Kendall & Boyle exhibited to us yesterday samples of golden cement from their rich mine at Bangor.

We learn that the mines at Brown's Valley have not been interrupted by the late storms, and that all of the mills are crushing rock and making money. The Jefferson has been running part of the time lately on rock from the Rattlesnake mine.

COLORADO.

Denver News, Dec. 11th: The war at Boulder concerning the jumping of the Hoosier silver lode has been ended by the arrest of the jumpers. The lode is now in the possession of the legal owners.

At the Colorado National Bank, this morning, was a bar of gold bullion weighing 36 29-100 ounces, fineness \$38, value in coin, \$635.10.

C. A. Scott writes from the Cimmaron diggings that they find from five to 25 cents to the pan. He has secured claims in Dry Nigger and Humbug gulches.

Central City Register, Dec. 10th: The Discovery shaft on the Herkimer lode is now down 65 feet, and shows two veins of rich ore, one three and the other seven inches thick. Ten or twelve rods east the vein has been stripped for some distance, showing from 8 to 13 inches of the rich, argentiferous galena and silver sulphurets. An average of ten inches assayed by Prof. Martine, went \$700 per ton. Six or eight rods east of this open cut again, an adit has been faced down. At this point the walls of the lode are seven feet apart, there are three and a half feet of quartz, carrying five narrow, but rich seams of mineral.

Prof. Hill's matting furnace began work on Monday week, smelted about 50 tons of ore, and stopped on account of the failure of the fire-brick or tile in the terrace furnace, used for calcining tailings. New brick will be substituted. Contracts have been let for the construction of a reverberatory furnace, to be finished in four weeks.

The shipments by Wells, Fargo & Co's Express for the week ending Dec. 3, amounted to \$18,650.

Georgetown Miner, Dec. 5th: A small

lot of galena ore, from the Malahar lode, was recently run at the Georgetown Smelting Co's works, which yielded \$85 in silver to the ton of ore. The ore carried 78 per cent. of metallic lead to the ton.

We have seen a fine piece of silver bullion weighing 15 ounces 10 dwt., extracted from 20 pounds of ore from the Henrietta lode, East Argentine, by Messrs. Stowell and Litchfield. This shows a yield of \$209.25 in silver, coin value to the ton of ore, currency value \$272.80. The ore is from eight to 24 inches in width, a very fine sulphuret of the same character as the Belmont.

Kinney has started up his stamps and furnace on Young America ore. He made a test a few days since of 25 pounds of ore, from which he obtained seven ounces of hard amalgam.

The *Times* says that Robert Teats has just finished a run of Smith & Parmelee ore with most satisfactory results. The average yield was five ounces to the ton; value \$18, coin, or between \$80 and \$90 a ton. Two additional cylinders are to be put up immediately at the California Reduction Works.

IDAHO.

Owyhee Avalanche, Dec. 14th: We have been shown some ore taken from a ledge recently discovered up the gulch not far from the Whisky mine. The ledge is from 10 to 15 inches wide near the surface, and if the mass of the ore is half as rich in gold and silver as that shown us, the discoverers will be sure of a fortune. It is called the "New Whisky."

Col. Fogus has struck another rich ledge on the mountain above Silver 'ord. The Colonel had observed rich float quartz in that vicinity for some time, and going up the mountain side as high as any float could be seen, he sunk down and struck rich gold bearing quartz, which he is of the opinion is the source whence the previously discovered pieces came.

A rich clean up has recently been made from Ida Elmore rock, worked at the Lincoln mill. The yield was handsome, but we are not at liberty to state the amount. Work will be continued upon the mine during the winter.

Five tons of ore from the Whisky mine were this week worked at the Cosmos mill, yielding \$140 per ton.

The Boise *Democrat* says that an excitement has been created in Boise City by the discovery of two gold and silver bearing quartz ledges. They are situated in the vicinity of Willow Creek, and are named the "Golden Age" and "Surprise." The former is over 40 feet wide, and fine gold can be seen in several pieces that were brought into town. There are some parties at work mining in the creek between the ledges. It pays \$8 per day.

Owyhee Avalanche, Dec. 21st: Wm. Lent, Geo. Hearst and others, of San Francisco, have purchased the Rising Star mine in Flint. They have also purchased Gen. McQueen's lease, so that they now own the entire mine, for which they paid \$30 per foot. The purchasers have incorporated under the title of the "Rising Star Co." It is the intention of the company to erect a large mill as soon as possible.

The late snow has improved the roads, and immense quantities of quartz are being hauled to the mills. At almost any time of the day, and often in the night, numerous horse, mule and ox teams pass through our streets heavily laden with the precious ore. For instance, 40 tons per day are now taken to the Owyhee Co's mill.

MONTANA.

Post Dec. 14th: In Norwegian Gulch, there are found extensive deposits of gravel from 18 to 23 feet deep, while on the bars, the bedrock is seldom over eight feet in depth. The miners on these claims have made considerable money. The claims are easily worked, and the gold is of unusual fineness and is generally coarse, and what is termed wire gold.

It is rumored that Col. Allen has sold the Allen lead, located in Ten Mile District, to a St. Louis company for \$160,000.

Rich diggings are reported to have been struck on the Big Boulder, some five or six miles above the crossing of Virginia City road, and quite a furor exists in the valley about them.

The 10-stamp mill of the Lost Lake Co. in New York Gulch, recently cleaned up \$1,100 from 70 tons of ore from the Little Giant Lode. The tailings of the mill have been saved, and it is thought they will yield largely.

Ricker informs us that Hendrie's mill cleaned up 187 ounces of handsome retort from the last run of Whitlatch Union ore for the I. X. L. Co.

Messrs. Parrott & Co's patent four stamp quartz mill is a complete success. The other day it crushed a ton of ore in one hour and a half. The machinery works

easily, and the rock is pounded as finely as in any of the other mills. It is now crushing ore from the Discovery claim on the McIntire lode, and on Wednesday last the plates were looking finely.

The St. Louis and Montana Co's mill at Flint Creek is running constantly and turning out hullion at a rate perfectly agreeable to those interested. The mines are improving as developments bring their riches in view, "the Hope, Comanche and Poor-man leads far exceeding expectations." Messrs. Taylor, Madison & Co., have purchased 1,100 feet on the Van Dieman lode, northeast of the Comanche, and are developing it. The vein of the pay ore is 13 feet wide. One of the Company is about to start East, and will have a mill gotten up in St. Louis this winter from California patterns of the latest and improved character. Everything is lively at Phillipsburgh.

The Argenta correspondent writes that precisely seven weeks from the day the first blow was struck on the Elser Smelting Works, the first charge was put in the furnace. The furnace works to a charm. During the first 24 hours, one ton of rich lead was run out. There is now out 6,000 lbs., 2,600 lbs. per day, worth from \$500 to \$550 per ton. When from 12 to 15 tons have been run, the furnace will be stopped and the cupel started, it not being deemed advisable to crowd the works at first. When working to its full capacity, two tons of lead per day will be run, and from 20 to 25 tons expelled at one operation.

NEVADA.

Humboldt.

The Unionville correspondent of the Marysville Appeal, of Dec. 20th, writes: "From all parts of the country we have favorable accounts. Mr. Fall has been quietly working his mine for the last six or eight weeks with a force of 20 men, keeping the Pioneer mill running day and night. The public was startled a few days ago upon learning the fact that he has all along been taking out ore by the tons of the value of \$1,000 per ton, and that too, from the finest vein ever discovered in this county. This mine is five ft. wide at a depth of 70 ft., encased between two as fine walls as I ever saw, piteb into the mountain at an angle of 45°. This entire vein from wall to wall is rich pay. This mine is located in a rich belt of ore which can be traced by float rock for a distance of two miles or more. The belt will now be thoroughly developed. The Seymour Co. have struck a small vein of ore of the same character as the Aragona, about a mile south. The vein is very thin on top but increases as they go down. A New York company has secured the National mine, and in a short time will proceed to its development. It will erect a mill early in the spring. Mr. Fall is now making arrangements for a 16-stamp steam mill for his new mine. With his new mill and the Pioneer, he will be able to reduce from 25 to 30 tons per day. The supply of ore is amply sufficient to keep both mills running day and night."

Unionville Register, Dec. 21st: The quartz mill belonging to the Monroe Co., is now being laid down in Dun Glen, where it will soon be put up and in running order.

The Essex Co's mill, at Dun Glen, is expected to be ready early in January. Work is being pushed vigorously on the mines, and large quantities of ore are now being piled up in anticipation of the early completion of this mill.

Gov. Fall is making arrangements to resume work on this mine at an early day. The ore will be worked at the Essex mill, in Dun Glen.

Fall & Co. shipped this week by Wells, Fargo & Co., 1,700 ozs. of hullion.

Pahrnagat.

Reese River Reveille, Dec. 18th: Mr. W. Fleming, Supt. of the Alameda Co., arrived from Pahrnagat last evening, and reports the arrival of the machinery for Ostrom's mill at Hiko. Mr. Fleming speaks highly of the fine appearance of the company's claim on the List ledge, which is the most fully developed and promising in the district. Several companies are prosecuting work under encouraging circumstances.

Reese River.

Reveille, Dec. 18th: This afternoon a team arrived in the city with 9,700 lbs. of ore from Leon & Co's claim upon the El Dorado ledge in the Silver Bend district. We saw a few of the sacks opened, and the ore appeared to be of a high quality. There was one chunk of 260 lbs., which looked as though it would yield half that number of dollars. The ore was brought here for reduction at the California mill, and is at present at Triplett's stable.

There arrived in this city last night 3,070 ozs. of erude hullion from the Old Dominion mill at Hot Creek.

Dec. 20th: Two bars of bullion from the

mill of the Belmont Co. arrived in the city last night; also 1,500 ozs. of erude bullion from the Old Dominion mill at Hot Creek.

Dec. 23d: A lot of upwards of 100 tons of ore from the Great Eastern mine, sent to the California mill for reduction, in all 11½ tons of very rich ore, the pulp assay of which was \$408 per ton. The small lot was carefully selected. The great proportion of the ore was second class, which will yield about \$125 per ton.

Silver Bend Reporter Dec. 21st: The ore in the incline of the El Dorado South still continues of about the same quality, as a week ago—assays ranging from \$400 to about \$5,000 per ton. A depth of 16 feet has now been sunk in this body of rich ore. The incline will be continued until water is reached, when the levels will be run and preparations made for mining upon an extensive plan and in a thoroughly systematic manner. In the absence of a custom mill, the ore taken from the vein will be sent to Austin for reduction. It is estimated that the ore already out will net a sum sufficient to reimburse the owners for all expenditures made upon the mine to the present time. A shipment of 5½ tons of ore will be made to-day, aggregating upwards of 13 tons forwarded since the strike.

On the 12th inst. there was received at Austin hullion valued at \$3,000, from the Kuickerbocker mill, Ione district.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia Enterprise, Dec. 20th: The Mariposa mill, at the foot of Cedar Hill, having become the property of the California Bank, has been remodeled and renamed. It is now called the California mill, and is rigged up in the same style as the mills at Grass Valley. There are no pans and no arrangements for saving silver. It will run upon gold rock from the Sacramento mine, on Cedar Hill, Steel & Co., (who have a contract for taking from the mine some 200,000 tons of ore) furnishing the mill with the rock.

Dec. 21st: Well, Fargo & Co. shipped from this city and Gold Hill, during the week, 4,317 pounds of assayed bullion, valued at \$104,135.94.

Dec. 22d: A small lot of ore from the Independence lead, Washington district, worked at the Eclipse mill, Gold Hill, according to assay by Van Wiek & Co. yielded as follows: Gold, \$19.22; silver, \$14.21—total, \$33.43 per ton of ore. Value per ton of bullion, \$3.20.

Dec. 24th: Owing to an accident to the hoiler of the Chollar Potosi hoisting works, work on the mine has been discontinued, until the necessary repairs are made.

Dec. 25th: Last night's freshet was exceedingly disastrous to the Bowers' mill. An immense body of water came down, carrying with it hundreds of tons of rock. The ditch soon filled up notwithstanding the utmost exertions of 15 or 20 men. As soon as the water broke over the embankment, an acre of ground back of the mill was covered with the debris from two to four feet deep, and the mill even to a greater depth. The well in the mill, and the tanks, and many of the pans were filled. About 40 tons of pay ore was swept down with the general mass. The damage done will probably amount to \$5,000; besides it will take four weeks to get the mill ready.

Dec. 29th: From every quarter we hear news of the destruction of property by the late flood, on both Six-mile and Gold Cañons, the sluices for saving sulphurets and the reservoirs of tailings have been swept away and the roads so washed and gutted as to be impassable. The mills have not suffered much damage, except to outside property, as to dams, wood, the breaking of ditches, washing away of tailings, etc. About 50,000 tons of tailings were swept out of the big reservoir, in Six-mile Cañon, of Janin, Bonner & Parks. The tailings were estimated to be worth \$12 per ton.

Enterprise, Dec. 28th: Owing to the terrible condition of the roads over the mountains, no hullion has been shipped during the past week. Several tons are lying at Wells, Fargo & Co's that will be shipped as soon as the roads improve sufficiently.

The majority of the mills in Gold Cañon stopped by the late flood have resumed work.

OREGON.

The Oregonian of the 18th, says: Mr. C. H. Seeley, Supt. of the La Grando Gold and Silver Mining Co., showed us last evening a specimen of rock taken from the Gem of the Mountain ledge, Eagle Creek. It was taken from the bottom of the inclined shaft, at a depth of 250 ft. It shows very rich evidences. The company have been working the mine during the past summer, with a 5-stamp mill of imperfect make, and

have realized an average of \$18 to \$25 per ton. The Humboldt Co. with a better mill, have been saving \$30 per ton from rock from the same ledge. Mr. Seeley is here for the purpose of procuring better machinery, and has contracted with the Willamette Iron Works for a 10-stamp battery and a 30-horse power engine, which he designs to send in to the mine as soon as completed. The La Grando Co's mine is well developed, and they have, apparently, a fine prospect of realizing from it. The shaft is sunk about 300 ft. on the incline, and at that depth, the ledge is eight ft. wide. For the last few weeks, three men in the shaft have got out on an average of eight to ten tons of rock per day, and Mr. Seeley thinks that 10 or 12 men in the mine and mill can run a 10-stamp mill to its full capacity.

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13. It received a special premium at State Fair

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA.

San Francisco, May 24, 1866.

Recently, two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way merit our fullest approval.

They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks.

We deem the lock entirely burglar-proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find no difficulty in either opening or closing it, nor in changing its combinations, which may be made almost innumerable.

As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it.

WM. H. TILLINGHAUST, Sub-Manager.

We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several to Vaults and Safes, to entire satisfaction to parties interested.

KITREID & LEAVITT,

Pioneer Iron Works, cor. Fremont and Market sts.

SAN FRANCISCO, May 6, 1867.

I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safes and Vaults in every other respect as good as any other improved combination lock which I am acquainted with.

JOHN R. SMITH,

Vault Manufacturer, Oregon street.

JACKSON, April 27, 1867.

I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:

1st.—Because it is impossible for either burglar or expert to pick it.

2d.—The lock being constructed without a key-hole, it cannot be blown to pieces by powder.

3d.—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.

R. COSNER.

Attested by J. C. SHIFMAN, County Clerk.

JACKSON, April 27, 1867.

The undersigned, Treasurer of Amador County, do hereby certify, that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's Safe. I have no fear of any bystander gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe every few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.

OTTO WALTHER.

Attested by J. C. SHIFMAN, County Clerk.

CALIFORNIA LOCK ARCADE.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Powder and Burglar-Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the PRESS several months since. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable claims asserted in favor of the Lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily made known to the masses. It is ultimately certain to attain Mr. Bussey, having properly first fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.—[Mining and Scientific Press, Sept. 29, 1866.]

They are the only SAFE lock ever invented. Every State and County treasury vault, and every bank and business place should have one.—[Amador Ledger.]

This is a lock in which a series of rotating annular tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which it was awarded a special premium at the State Fair.—[Sacramento Union.]

We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar Proof Lock to be the most reliable lock constructed.

F. MARKT & C. F. FISHER,

No. 18 Post street.

REFERENCES:

R. COSNER, Sheriff.
O. WALTHER, Treasurer.
W. JENNINGS,
C. H. INGALLS, } Supervisors.
L. MC LAINE,

Any good blacksmith can put this lock on safe doors. Boxed or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be.—[See page 30 in Pacific Coast Directory.]

A dealer or blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.
19v14ny11&73.1am

Mining and Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

G. W. M. SMITH. W. B. EWER. A. T. DEWEY.
DEWEY & CO., Publishers.

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Canvassing Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. Kane, is our duly authorized agent for Sacramento County. Nov. 29, 1867.

Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

Mr. H. C. Northrop, is our duly authorized agent for Oregon, Washington, Idaho, and Montana. Aug. 17.

OUR NEW YORK AGENCY.—MR. M. A. LATHROP, formerly of California, is our authorized Agent in New York. Parties in the Eastern States who desire to subscribe for or advertise in the MINING AND SCIENTIFIC PRESS, can address Mr. L., at No. 726 Broadway, for the present. Nov. 26, 1867.

San Francisco:

Saturday Morning, Jan. 4, 1868.

Notices to Correspondents.

R. B. & Co., STOCKTON.—You evidently mistake the principle involved in the artificial manufacture of ice. The vacuum is not produced in the vessel containing the water to be frozen. The water to be frozen is placed in a vessel whose walls are brought in close contact with the walls of another vessel, which consist of two compartments, separated by a stop-cock. The fluid used is of a highly volatile character, such as ether, ammonia, etc. The water is frozen, not by the production of a vacuum, as by the pumping of air from a vessel partly filled with water; but by the rapid evaporation of the volatile fluid employed, in which the vessel containing the water to be frozen is placed, but necessarily separated from actual contact with the fluid by a double wall. The process of evaporation is hastened by the application of heat.

H. S.—In reference to your queries and communication with regard to the propriety of offering a State reward of \$20,000 for some cheap process for working rebellious ores, we do not think there is so much need for a new process, as there is for a better understanding among miners and millmen of the proper application of means and processes already known. Perhaps the greatest difficulty arises from the ignorance with regard to the application of the various known modifications which should be made to suit the different ores and different circumstances under which our mines and miners are placed, involving the peculiarities of the ores, the climatology of the locality of the mine, the facilities for wood, water, etc. A mining education, and the ability and inclination for a faithful and honest use of known appliances, is of more importance in California and Nevada, at this time, than new inventions and new processes.

I. D. F., B. S., AND OTHERS, Pioneer City, Idaho Territory.—In our last week's notice to these correspondents, a typographical error occurred; the yield in place of \$13.33, as then inserted, ought to have been \$1,333 per ton, the assay being \$2,243. The width of ledge said to be fourteen feet; its title "The Duncan Extension."

GALEN.—By "Vital Force" is that peculiar power by which the most important alterations in living, organized bodies are produced. All changes produced by mechanical attraction belong to the province of physics. Phenomena resulting from vital force, to that of animal and vegetable physiology.

ANTIQUARY.—Among the nations of antiquity the Egyptians appear to have possessed the greatest amount of chemical knowledge. They prepared sal-ammoniac, soda, common salt, vitriol, glass, enamel, tiles, painted earthenware, several metals and metallic alloys, soap, beer, vinegar, various medicines, pigments and cosmetics, and knew how to fix colors on silks by means of mordants, and to preserve dead bodies from decay.

PERSONAL.—Prof. Silliman, who has spent about a year on this, his second visit to the Pacific Coast, leaves on the steamer to-day for New York.

A National Mining School.

On the 2d of December, last, Senator Stewart introduced into the Senate a bill having for its object the establishment of a National Mining School, to be located at some central point in the mining region west of the Rocky Mountains. For the establishment and support of such a school, the bill provides that the present tax of one half of one per cent. on the bullion product of the country (about \$300,000 annually), shall be applied to the establishment and maintenance of such a school. It also provides that the school shall be under the control of a Board of Directors, to be appointed, one from each State and Territory west of the Rocky Mountains. The chief branches to be taught therein must be geology, mineralogy, metallurgy, chemistry, assaying, and mining engineering. Machinery will also be provided, and the details of operating it, and treating the various kinds of ores will be practically taught.

This bill has evidently been introduced in accordance with the suggestions of Commissioner Brown, as made in his last report now before Congress, but not yet published to the world. Letters from Washington, written at the time of the introduction of the bill, say that the project met with much favor at the Treasury Department, and will be warmly supported by most of the members of Congress. It will probably be the first matter on mines and mining which will be referred to the Senate and House Committees. The bill will no doubt find equal favor with the people at large.

The receipts, under the bill, for the first year, will be applied to the erection of suitable buildings, and the furnishing of the same with the necessary machinery, furnaces, and other appliances for the various metallurgical processes to be taught, all of which are to be built and furnished in the most economical manner consistent with the duty required. A commission, in the meantime, will be sent to examine the principal mining schools of Europe, and procure all available information, to the end that the Directors may be placed in possession of the most approved systems of instruction employed at such institutions.

The tuition in the school will be free to any citizen of the United States who may present proper evidence of qualification; it will also be open to the students from the schools of other countries, whose authorities shall duly recommend the applicants. All expenses for books, subsistence, traveling, etc., will be borne by the students.

The primary object of the school will be the increase of the bullion yield of the country by the practical application of science to mining, and the diffusion of a more general and correct knowledge among miners as to the best methods of opening and working mines and treating their ores. The Faculty of the school will be required to collect mining facts and statistics, and make annual reports of the same to the Treasury Department, to be thence communicated to Congress and to the country at large.

The necessity of a Mining School, conducted on a most extensive and liberal scale, has long been apparent to all intelligent and reflecting men acquainted with our mines and mining interests. The lack of any proper national, or universally acknowledged source of reliable information, has afforded opportunities for the introduction and growth of a class of imperfectly educated mining experts, who, by their constant succession of failures, and often downright impositions, have engendered a natural feeling of distrust toward all who claim any scientific knowledge of the theory of mining and metallurgy. Under this condition of things, it is not strange that mining, as a science, is almost unknown on this coast—every man pursuing his own course, ignorant of the why or wherefore, satisfied if he can only obtain a fair profit from the richest of our mines, careless of whatever

he may lose in his manipulations, and totally ignoring, as valueless, what probably constitutes the great mass of all the ores in the country, simply because he cannot work them to a profit by the wasteful and extravagant manner of working with which alone he is acquainted.

The fact is now almost universally acknowledged that we are losing from 30 to 50 per cent. of the actual value of all the ores treated on this coast, to say nothing of the immense losses which the country is sustaining by the rejection of low grade ores, rendered necessary by the imperfection of our mining education and practical appliances. If we estimate the present yield of bullion at \$70,000,000, a systematic and thorough system of working the ores now being manipulated might raise that yield to near \$100,000,000; while the bullion attainable from the now rejected ores might be made to reach half as much more. These estimates are based upon facts beyond cavil, and the improvements hinted at are attainable only by the establishment of some institution such as is contemplated in the bill under consideration. It cannot be expected that any important improvement can be arrived at in a year or two. It will require many years to raise up an educated corps of miners and mining engineers, capable of properly directing even the mining interests already developed. But a beginning must be made, and every day's delay is costing the country thousands of dollars. That the bill is all that can be desired is not probably claimed even by its originator. We trust that it will be passed at the earliest practical moment; and amended, if necessary, as circumstances shall seem to render expedient. In the meantime, the Commission may be appointed to visit the schools of Europe. No farther movement, other than originating a Board of Directors, should be made, until the return of the Commission, when the Board will be put in possession of facts, upon which they can act understandingly. With regard to the organization of the Board of Directors—better satisfaction and more exact justice would be given by apportioning them among the several States and Territories, on the basis of population, rather than as the bill proposes.

OUR LAST ILLUSTRATION.—Most of our readers, no doubt, noticed the omission, in our illustration of last week, of the letters referred to in the description of the same. The plate was received from New York, together with an impression, which we naturally inferred, was taken therefrom. That impression, however, must have been taken from another plate, as it was the same as that given in the Press, but fully lettered, and from it our description was written, instead of from a proof sheet of the plate taken in our own office. The wrong plate was evidently sent us, and the omission of the lettering was not discovered until the edition was nearly all printed. By a careful examination of the illustration, however, our readers will have no difficulty in fully understanding it. We shall not again trust to proof impressions from New York.

KUSTEL'S NEW WORK.—A treatise on the Concentration of all Kinds of Ores under the Chlorination Process for gold-bearing sulphurets, arseniurets, and gold and silver ores generally, profusely illustrated with 120 diagrams, has just been issued from the press. We shall notice it, at length, next week. The price of the book is \$7.50 in coin, on the receipt of which it will be sent to any part of the United States, postage paid. Orders addressed to Dewey & Co., at this office, will be promptly attended to. See advertisement in another column.

NEW CONCENTRATOR.—One of Wheeler & Randall's new concentrators was recently put up at the Brunswick mill, on the Carson river, and used below all other machinery hitherto employed at that mill. We understand it is saving daily about ten pounds of quicksilver and two pounds of amalgam. This, we believe, was the first of these machines put up at any mill, it having been but recently invented. The success of this machine has been such that six others have already been ordered for six different mills in that vicinity.

Jeremiah Day, D.D., LL.D.

In the list of distinguished dead for 1867, published in our last issue, the name of President Day was inadvertently omitted. No name is more eminently worthy of an extended mention than that of this venerable patriarch. It is one which is conspicuous among those of two successive generations of notable men. Born in 1773, he was, at the time of his death, in August last, in the ninety-fifth year of his age. In 1789 he entered Yale College; in 1798 became one of its tutors; in 1801 was appointed Professor of Mathematics and Natural Philosophy, and in 1817 was made President. For twenty-nine years he filled that position, and in 1846 resigned. For the last twenty-one years he has resided in the family of his son-in-law, in New Haven,—to the last connected with the College as Trustee.

President Day was one of the first mathematicians of his time. His text books are well known. While occupying the Professor's chair, he published, in 1814, his "Algebra," and "Mensuration of Surfaces and Solids," in 1815 "Plane Trigonometry," and in 1817 his "Navigation and Surveying." All these books have passed through several editions.

Although, at the time when he retired from active duty, he was considerably past the three score and ten years, usually reckoned as man's allotted age, he did not suffer his mental powers to rust from disuse, but, by constant, moderate exercise, kept them bright and clear for the whole of the additional score which were granted him. The revival of his works, family and friendly correspondence, and the discussions of the "Ex-officio Club" which met weekly in his study, and was composed of retired clergymen and other professionals, occupied much of his time. He retained his physical vigor, too, in a remarkable degree. To the last, he took his daily walks to the postoffice, regardless of the weather. His hand-writing at the age of 93 showed, except to those most familiar with it, no signs of decrepitude. Until within a few months before his death, a slight deafness was his only apparent serious infirmity. On last Commencement Day, a few weeks previous to his death, he received a visit from the surviving members of the college class which graduated just half a century before,—the first under his administration as President. He gave them a cordial reception; and with them conversed freely of the years and the men that had passed away since the day on which those who remained,—now, themselves old men,—had received, through his fatherly hands, the farewell blessing of their Alma Mater.

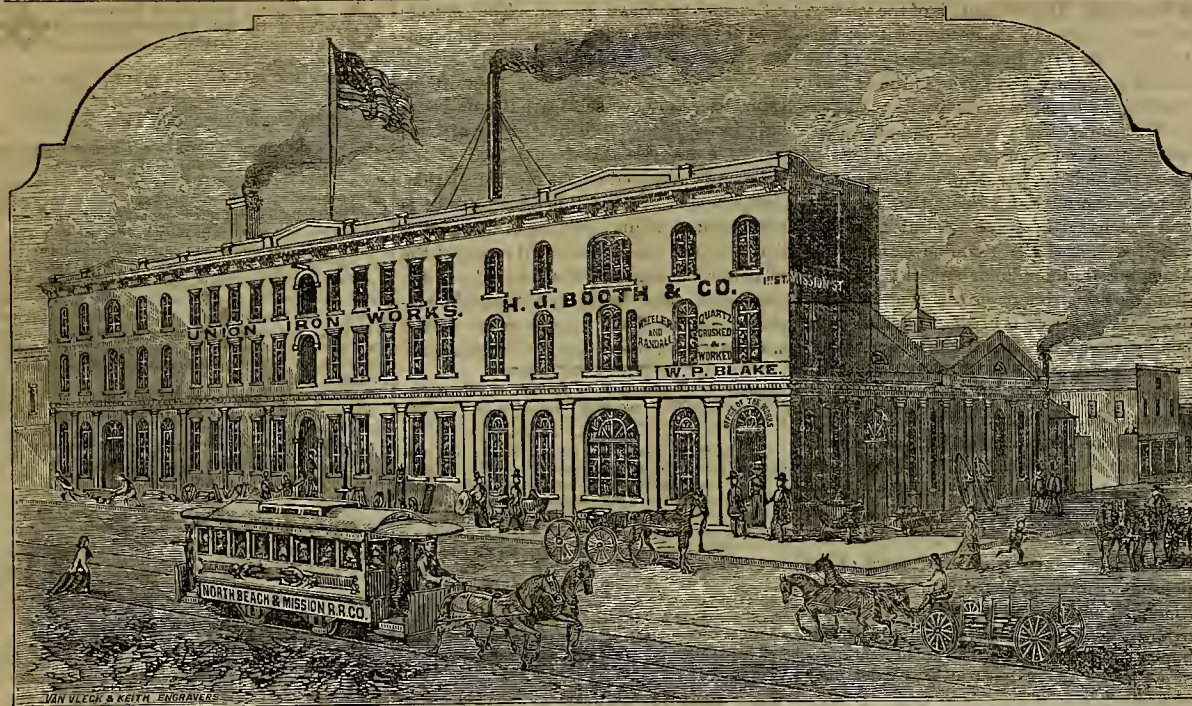
President Day was twice married. His first wife was the daughter of Roger Sherman, the Connecticut Statesman. Of all the children who were the fruit of the two marriages, the sole survivor is the first-born, Hon. Sherman Day, of California, member of the State Senate in 1856.

PATENTS AND INVENTIONS FOR 1867.—During the year ending September 30, 1867, according to the Report of the Secretary of the Interior, there were 16,547 applications for patents; 11,655 patents (including reissues and designs) were issued; 1,224 applications were allowed, but have not issued thereon, by reason of the non-payment of the final fees; 3,486 caveats were filed; 96 applications for extension were received, and 82 extensions of patents were granted.

During the same period the receipts were \$611,910.61, and the expenditures \$553,599.98, leaving a balance of \$58,310.63, which added to \$228,297.26, the balance on hand September 30, 1866, makes the amount now in the Treasury to the credit of the Patent Fund, \$286,607.89.

In my last annual report, says the Secretary, I advised a repeal of the law conferring upon a party the right of appeal from the Commissioner of Patents to one of the Judges of the Supreme Court of this District. Subsequent reflection has confirmed my conviction of the soundness of the views then presented. In no other instance is an appellate power given to a Judge to affirm or reverse the action of an executive officer.

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ENGINES.—Marine Engines, Oscillating and Beam; Stern and Side Wheel Boats, Locomotives, Stationary Engines, Horizontal, Upright, Oscillating and Beam, from six to fifty inches diameter. Also, Scott & Eckart's Adjustable Cut-off Regulator—best in use; W. R. Eckart's Balance Valve for Stationary Engines; Woodward's Patent Steam Pump and Fire Engine.

BOILERS. Locomotive, Flat, Tubular, Upright, Cylinder and Cornish, and every variety of Boiler Work. All sizes of tubes and pipes for pumps.

PUMPS.—The Excelsior double-acting Force Pumps are manufactured by us. These very superior Pumps are warranted the best, and are fast replacing all other Force Pumps.

AMALGAMATING MACHINERY.—Wheeler & Randall's Improved Tractory Curve Pan, Zeus Wheeler's improved flat bottom pan, Beldin's pan, Veatch's tubs, Frater's concentrators, Wakley's pans, Beers' pan, German Barrels, Arastra Gearing, Gold Mills, Settlers of all descriptions, Retorts of all sizes and shapes, for Silver and Gold, Portable Stamp Mills, Straight Batteries, for wood or iron frames, Dry Crushing Batteries, or machines with the latest improvements, every variety of Stamps, Mortars, Camis, Pans and Tubs. BLAKE'S PATENT QUARTZ CRUSHERS, of all sizes.

OIL BORING TOOLS AND MACHINERY.—Of the latest and most approved construction, made from drawings lately made by Prof. Blake at the oil wells in Pennsylvania. We have the facilities for working gold and silver quartz and other ores, to test their value, by the hundred weight or ton.

Russia Iron Screens, of all degrees of fineness and of all qualities of Iron. All work done in the best manner at the lowest cash prices.

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DUNBAR'S IMPROVED

Self-Adjusting Piston Packing,

Requires no springs or screws; is always steam tight; without excessive friction, and never gets slack or leaky.

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NEW GRINDER AND AMALGAMATOR
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Knox's Amalgamators,

WITH PALMER'S PATENT STEAM CHEST,

Superior for working either GOLD OR SILVER ORES, and is the only Amalgamator that has stood the test of seven years' continuous working.

Genuine White Iron Stamp Shoes and Dies
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Packing, requires no springs or screws; is always steam-
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Castings, Brass Ship Work of all kinds, Spikes, Sheathing
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Gongs of superior tone. All kinds of Cocks and Valves, Hy-
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All work done guaranteed. 13v14-1y

ELECTROTYPING CUTS, ENGRAVINGS, Etc.—Our Job Printing
Office is abundantly supplied with elegant engravings, or
namons, and other embellishments to suit the various
branches of industry in this State.

OPIMUM EATING IN ENGLAND.—England, which once went to war for the purpose of drugging the Chinese with opium, is in a fair way of having the poisonous chalice commended to her own lips. We see it reliably stated that in the eastern counties of England, opium-eating is spreading to an alarming extent. In the town of Lynn, a single chemist sells 200 pounds of solid opium annually; another sells over half that amount, besides disposing every week of five or six gallons of laudanum and as much Godfrey's Elixir, a composition consisting of one-third opium. In other places the statistics are equally startling. Visitors to that part of England easily discern the effects of this pernicious habit in the miserable, feeble, brownish-yellow countenances so striking among many of the inhabitants, while the infant mortality of the district is excessive.

The new grass so rapidly growing in the South, called Lespidasa, came from Japan. The Charleston papers unite in pronouncing it the greatest blessing in the form of grass that has ever been bestowed on the South.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.

Hamburg, by Hamburg mail—2 cents each.

Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.

Lauenburg, by Bremen mail—3 cents each.

Lauenburg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.

Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.

Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—4 cents each.

Italy, by Bremen or Hamburg—5 cents each.

Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen and Hamburg mails via Trieste—4 cents each, and 2 cents per 1½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.

Hamburg, by Hamburg mail—1 cent per ounce.

Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.

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Lauenburg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.

Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.

Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.

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Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.

Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.

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CALIFORNIA ABROAD.—An Eastern Magazine, the New York *Exchange and Review*, discourses with regard to the present condition and future prospects of California as follows: "The statement from California that for nine months of the present year the value of the exportation of wheat and flour from San Francisco was \$9,347,000, shows that the agricultural interests of that State are extending. A few years ago wheat was carried to California to feed a population busy in the search for gold. Now, that region not only supplies all its own people, but has a surplus of cereals to send abroad. From these present advantages the future prospects of California may be prognosticated. Every year the cultivation of the ground increases. Fields and vineyards are planted upon virgin soil, and the crops of grapes, vines and grain are satisfactory to the people of the State. With the agriculture of the great Pacific State, her commerce must also increase. Already the new line to China and Japan is bringing to her the rich trade of the Indies—that prize for which the kingdoms of Europe struggled so long. The opening of the great Pacific railroad will insure to San Francisco the commerce of the world, which, coming from Europe and America, will pass through that great city, and be met by the commerce of the great Asiatic nations."

THE FIRST SHEET OF PAPER made in the Southern hemisphere, was recently turned off by Prince Alfred, during his visit to Melbourne. It was accomplished at the inauguration ceremonies of the starting of the first mill in Australia.

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On orders not exceeding \$20.....10 cents.
Over \$20 and not exceeding \$50.....25 cents.
No fractions of cents to be introduced in an order. United States Treasury Notes, or National Bank Notes only received or paid.

To send over \$50, additional Orders must be obtained. Post offices where Money Orders are obtained will furnish blanks as follows, which the applicants will fill out: No. Amount Date, 186

MONEY ORDER.

Required for the sum of \$.... Payable at State of Payable to Residing at State of Sent by Residing at State of ENTERED IN REGISTER; Postmaster.

The applicant must, in all cases, write his own given name and surname in full, and when the given name of the payee is known, it should be so stated; otherwise his initials may be used. The given names of married women must be stated, and not those of their husbands. For example, Mrs. Mary Brown must not be described as Mrs. William Brown.

Names of parties and places, and the sums, to be written in the plainest possible manner.

As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.

Office.	County.	Office.	County.
Auburn.....	Placer.	Napa City.....	Napa.
Buena.....	San Diego.	Nevada City.....	Nevada.
Campbellville.....	Yuba.	Oakland.....	Alameda.
Chico.....	Butte.	Oroville.....	Butte.
Columbia.....	Tuolumne.	Petaluma.....	Sonoma.
Colusa.....	Colusa.	Petaluma.....	Sonoma.
Dawsonville.....	Sutter.	Red Bluff.....	Tehama.
Dutch Flat.....	Placer.	Sacramento.....	Sacramento.
Eureka.....	Humboldt.	San Rafael.....	Marin.
Folsom City.....	Sacramento.	San Francisco.....	San Francisco.
Forest Hill.....	Placer.	Santa Cruz.....	Santa Cruz.
Georgetown.....	El Dorado.	San Jose.....	Santa Clara.
Gibsonville.....	Sierra.	Santa Rosa.....	Sonoma.
Glory.....	Santa Clara.	Shasta.....	Shasta.
Grass Valley.....	Sutter.	Sonoma.....	Sonoma.
Hendburg.....	Sonoma.	Stockton.....	San Joaquin.
Iron Valley.....	Amador.	Suisun City.....	Solano.
Jackson.....	Amador.	Susacville.....	Lassen.
La Porte.....	Plumas.	Vacaville.....	Solano.
Los Angeles.....	Los Angeles.	Valejo.....	Solano.
Mariposa.....	Mariposa.	Visalia.....	Tulare.
Marquetteville.....	Albion.	Watsonville.....	Santa Cruz.
Marysville.....	Yuba.	Weaverville.....	Trinity.
Martinez.....	Contra Costa.	Wilmington.....	Los Angeles.
Mokelumne Hill.....	Calaveras.	Yreka.....	Siskiyou.
Monterey.....	Monterey.		

NEVADA.

Office.	County.	Office.	County.
Virginia City.....	Storey.	Austin.....	Lander.
Carson.....	Ormsby.	Aurora.....	Esmeralda.

OREGON.

Office.	County.	Office.	County.
Albany.....	Lin.	La Grande.....	Clatsop.
Canyon City.....	Grant.	Oregon City.....	Clatsop.
Oreville.....	Benton.	Portland.....	Multnomah.
Dallas.....	Polk.	Roseburg.....	Douglas.
Engene City.....	Lane.	Salem.....	Marion.
Jacksonville.....	Jackson.	The Dalles.....	Wasco.
Lakeview.....	Yam Hill.	Umatilla.....	Umatilla.

IDAHO TERRITORY.

Office.	County.	Office.	County.
Boise City.....	Ada.	Ruby City.....	Owyhee.
Idaho City.....	Boise.	Leaviston.....	Ney Perce.

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena.....	Hogerton.	Virginia City.....	Madison.

WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia.....	Thurston.	Vancouver.....	Clark.
Stellacoom City.....	Perce.	Walla Walla.....	Walla Walla.

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13v15-12

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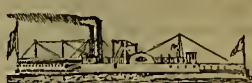
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 Steamer leaving San Francisco on the 10th touches at
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 Through tickets can be obtained.
 The following Steamships will be dispatched on dates as
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 January 10th—GOLDEN CITY.....Capt. W. F. Lapidge,
 Connecting with HENRY CHANCEY, Capt. Gray.
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PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

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Sellers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

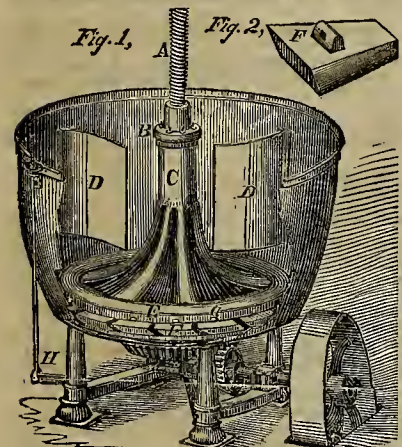
Mill men are invited to examine these pans and settlers for themselves, at the
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cheap, durable, strong, and not liable to get out of order. Built and on hand at No. 23 Second street, and 108 Jessie street.
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CELEBRATED HINGED
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The Cheapest and Quickest Pan now used.

It is flat-bottomed, loses far less power in throwing the pulp, and circulates the same under the muller to better advantage than any other Pan in use, while the steam, owing to the thinness of the cone, has a more direct effect of heating the pulp. E is the muller plate, F the Grinding Shoe, attached by an adjustable hinge joint in the middle in the same—the bottom wearing down even with the dies.

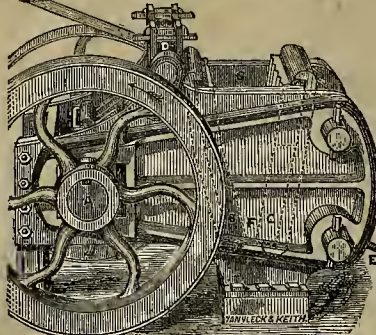
Mr. J. H. STEWART, the inventor, has had ten years of experience in mechanical operations, and may be addressed at San Francisco, or called on at the Miners' Foundry, First street, where his Pan is manufactured, and is to be seen at any time in operation.
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The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.
7v15-4y
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FOR THE TREATMENT OF
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The attention of all interested in Mining is respectfully called to this improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price..... \$600

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No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour..... 1,200

EXPLANATION OF THE ABOVE ENGRAVING.

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius-bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:—

RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1886.

JAMES BRODIE, Esq., San Francisco.—My Dear Sir: I give me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium in the Fair of the Mechanics' Institute in San Francisco in 1884. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel for a longer term than twelve months. All persons desirous of compromising, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1886.

BRODIE'S PATENT WIND-RAST SEPARATOR FOR DRY CRUSHING.

This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1886.

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HUNT'S ADJUSTABLE WIND MILLS to have all the sails so arranged as turn edgewise to the wind when the mill is stopped. The sails can be set at any angle to suit the force of the wind, while the mill is running, by means of the brake lever at the foot of the mill, by any person.

HUNT'S SELF-REGULATING MILL is strong, durable and cheap. It is provided with means for stopping, in the most violent winds. This mill is well known throughout the State.

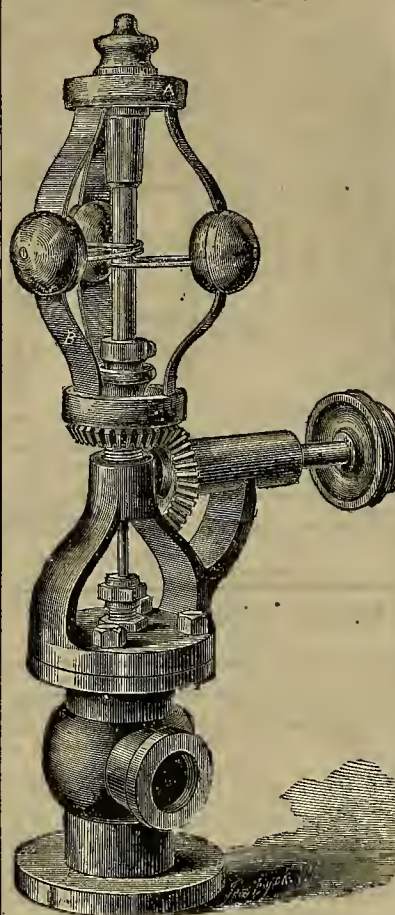
Tread Horse-Powers, Swap Horse-Powers, Pumps in great variety, Single and Double Acting, Frames and Gearing for running pumps, from steam or other power, constantly on hand and built to order. Water Tanks built to order.
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THE ATTENTION OF QUARTZ, HYDRAULIC AND PLACER MINERS, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest Free Gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address
Dr. J. B. BEERS, San Francisco, Per Wells, Fargo & Co's Express.
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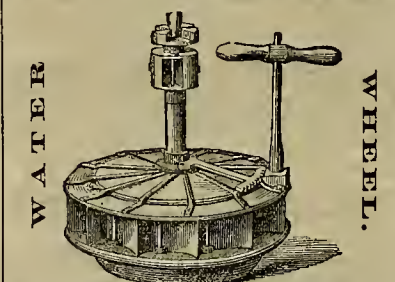


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Cheap and easy to attach to any Engine, old or new.

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CALIFORNIA REFERENCES.—E. Stetson, Folsom; O. Simmons, Oakland, (Mill at Clear Lake); Morgan Coville, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular, to

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We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

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With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,
Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

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A CHEAP OIL MILL.—The Santa Clara *Argus* describes a cheap oil mill, recently erected in that neighborhood, by Dr. McDaniel. The mill has been erected for the especial purpose of expressing the oil from the castor bean, which the Doctor is cultivating to the extent of about 80 acres. When ripe, the beans are gathered and spread out on a large floor, where the pods are dried, so that the bean drops from the hull. They are then passed through a common fanning mill, after which they are placed in quantities of about 80 pounds to a charge in a strong iron cylinder, where they are subjected to a powerful screw press, worked by horse-power. The *modus operandi* is new, having been devised by the Doctor himself. The press is lined with zinc, perforated to admit of the oil passing through between the lining and the press. The oil then slowly drips into a bucket. It is then taken and passed through a strainer like an ordinary fine sieve, falls into a tank, and is thence taken to a large cylinder and boiled in water for 15 or 20 minutes, and ultimately transferred to the "bleachers" or "clarifiers." These are constructed on the principle of horticultural hot-houses. The sun's rays falling on the glass, soon clarify the oil and render it transparent. It is then put into five-gallon cans, sealed, and transported for sale. The whole process is very simple and cheap. During the winter, the beans cannot be dried in the open air, so the Doctor is constructing a large barn where he can employ heated air for that purpose.

CAN STORMS BE FORETOLD.—Speaking of the recent tremendous hurricane in the West Indies, the *New York World* says:

"Various theories of these, which every few years devastate the West India Islands, have been broached from time to time. The one most generally accepted now is that they are hurricanes which have a progressive as well as a rotary motion, and generally rise in the Gulf of Mexico, gather fury as they proceed, and follow the course of the Gulf Stream until their force is extended. The precise cause of them, beyond the general theory of atmospheric currents and equilibrium, meteorology has failed to ascertain, yet it would seem, with the data at hand, that some more satisfactory solution than this might be ascertained. It is not likely that they originate very suddenly; there must be atmospheric indications of their approach, and it would seem to be as much in the interest of humanity as of science to investigate these indications, if for no other purpose than to obtain the requisite information for forewarning of their approach those who live within the track of such terrible hurricanes.

PAINT POISON.—A correspondent of the Paris Academy of Sciences, states that the poisonous properties of lead paint are due to the turpentine which is mixed with it, not the lead. This opinion is antagonistic to the commonly received one. It is undoubtedly correct, however, in this way: The turpentine is volatile, hence it may lift some of the lead when evaporated, and thus the metal be inhaled by the painter in the form of mineral gas. The correspondent above alluded to asserts that if turpentine were not used, paint poison would be unknown. Other cloying substances, such as the ordinary hydro-carbons obtained in the distillation of coal oil, are equally as deleterious as turpentine, and probably for the same reason.

GIGANTIC JUNIPER TREE AT YO-SEMITE FALLS.—We learn from Mr. Hutchings, of Yo-Semite Valley, that he recently achieved the supposed impossible feat of ascending to the summit of the "Cap of Liberty," 2,000 feet above the Valley, and one of the striking features of that wonderful locality. On the top of this battlement of nature, he found a group of eight juniper trees. One of them measured ten feet two inches in diameter, and is, according to the books, the largest tree of this class in the known world. The others of the group varied from five to eight feet in diameter. The juniper does not, we believe, ordinarily exceed 18 or 20 inches in diameter.—*Mariposa Mail.*

GLANDERS IN MEN.—Dr. Guyon of Paris, has written a paper for the Paris Academy of Science, to prove that the disease of glanders can be transmitted from the horse to man. The Doctor relates cases which came under his own observation.

A PRINTING PRESS is said to have been discovered in an underground vault in India, which must have remained there upwards of a thousand years.

BELLS are of ancient origin. An Eastern patriarch tells a story of a bell that was cast by Tubal Cain, and with which Noah was wont to summon his band of ship-carpenters to work upon the ark; and Moses records that the blue ephod of the high priest of Israel was bordered by a "golden bell and a pomegranate, a golden bell and a pomegranate upon the hem of the robe round about;" and so thereafter the ancient Persian kings went adorned and tinkling in their royal robes. Hand bells summoned the Greek soldiers to their duties in camp and garrison. They were used in the fish market of Athens, to call guests to feasts, and were sometimes used in religious ceremonies in the temples. But by far their saddest province was to hang about the neck of the criminal condemned to death, on his way to execution, "lest innocent persons should be defiled by touching him;" from which Greek custom is said to have arisen the Roman one of fixing a bell and a scourge to the Emperor's chariot, that in the splendor of his power he might be reminded of human misery, and admonished against pride.

It is an old supposition, that the use of silver adds much to the sweetness of a bell. It was the monk of St. Gall, who, being praised by Charlemagne for the beauty of tone of a bell he had cast, replied: "My lord emperor, command a great quantity of copper to be brought me, which I will purify by fire, and let me have silver instead of tin, and I will cast you such a bell that this, in comparison with it, shall be mute." But the cunning workmen of the present day have discarded the ancient belief in sweetening the tone of bell metal with a little silver, as a man would sweeten a cup of coffee with a lump of sugar. Says one of them: "This is a dream. Silver, if introduced in any large quantity, would injure the sound, being in its nature more like lead as compared with copper, and therefore incapable of producing the hard, brittle, dense, and vibrating amalgam called bell metal. There are, without doubt, various little ingredients which the skillful founder employs to improve his composition, but these are secrets to the craft, and peculiar to every separate foundry."

IMPROVED GIMLET.—Every one who uses the common gimlet knows that it is almost impossible to bore a hole with it without splitting the materials. Besides this, in hard woods, the tool works very unsatisfactorily, as the screw on the end draws out before the hole is completed. In any case the action of the gimlet is defective from the manner in which it is constructed. It is not a cutting tool, but performs its work by crowding or forcing the wood to one side.

Mr. E. P. Watson, of New York, has hit upon an invention, the object of which is to produce a gimlet that will bore without splitting, and cut as true a hole as an augur. In this instrument, the tapering portion is provided with a series of shoulders which form cutting edges, and removes chips as the screw on the end draws in. The object is attained perfectly, and the result is a much better tool at little additional cost of manufacture, and can be applied to gimlets already manufactured, either double or single cut. The advantages of this gimlet are apparent.

GOLD MINING IN ITALY.—The remittance of 1,308 ounces of gold from the Pastarena mines has realized \$4,293. As yet none of the advantages to be derived by the amalgamation has been experienced, and none of the rich ore has been treated. The ore treated since March 31st, by the native mills, has yielded an average of 2 ozs. 6 grs. of gold per ton, and some of the ore now being raised from the Aquavite bottom level will yield six ounces per ton.—*London Mining Journal.*

The trade in amber is becoming more extensive every year at Memel. The diggings in the Samlan, the district between Konisberg and the Baltic, recently yielded 5,300 pounds in one year.

Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thanks for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness:

MEERSTADT, January 22, '67.
Messrs. Dwyer & Co.—Sirs: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Washing Ores." It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf.
Very truly yours,
M. A. WOODSIDE.

**McCOMBE'S
PURCHASING AGENCY,**
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Personal orders, small or large, and for articles of every description, promptly and carefully attended to.
26v153m JOHN McCOMBE, Purchasing Agent.

SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;
With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

By WM. BARNSTOW, M. D.

Published by A. Roman & Co., San Francisco.
For sale at this Office—Price, One Dollar.
With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 25v151f

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Invalids and Families, supplied in quantities to suit, at
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Aqua Ammonia,
Acetic Acid,
Acids Chemically Pure,
Nitrate of Silver,
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AND CHEMICALS OF ALL KINDS,
Manufactured by the PACIFIC CHEMICAL WORKS,
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PRESERVED COFFEE,
PREPARED FROM

**THE BEST OLD GOVERNMENT
JAVA COFFEE,**

Condensed in the form of a Paste, by a process patented September 2d, 1867. One ounce equal to two of the best Ground Coffee, and salubrious for any gentleman's table. Preserves its strength and flavor without deterioration in any climate, and without regard to length of time.
If you want Chickory, apply it yourself.
Give our Coffee a trial, and if it is not fifty per cent. cheaper and better than any other, we will return your money.

FRANK SILVER & CO.,
No. 10 Stevenson street, near First,
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Pratt's Abolition Oil.

FOR ABOLISHING PAIN—THE BEST REMEDY IN
existence for Rheumatism, Neuralgia, Paralysis, Headache, Toothache, Sore Throat, Diphtheria, Wound, Swollen and Inflamed Joints, Contracted Cords and Muscles, Cramps, Colic, Diarrhea, Cholera, Fatigue in the Breast, Lame Back, and all aches and pains. It is the poor man's friend, and the best family physician. Full directions accompany each bottle. Price 50 cents and \$1 per bottle. For sale by all dealers in medicines. Sole Proprietors, A. McBOYLE & CO., Druggists and Chemists, 534 Sacramento street, opposite Whittier House, San Francisco. 10v11-17m

TO SPORTSMEN.



THE UNDERSIGNED HAVING BEEN APPOINTED
Sole Agent for the Pacific Coast for the sale of ROY-
AL'S BREECH LOADING SHOT GUN, which discharges
four shots in two seconds, and which will be furnished by
applying to or addressing

HENRY ETEL,
111 Second street.
Or Lock Box 1172 P. O., San Francisco. 18v15-20m

Manzanita Pipes!

WHOLESALE AND RETAIL.—SALESROOM, No. 55
Third street, near Mission. Factory, No. 10 Stevenson
street, near First, San Francisco. These Pipes are man-
ufactured from the best Manzanita, as sweet as
Meyers' brand.
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portant Lectures on FUNCTIONS AND DISORDERS of
the Nervous System and Reproductive Organs, to be had by
addressing and enclosing twenty-five cents, postage stamps,
to Secretary PACIFIC MUSEUM OF ANATOMY, Mon-
tgomery street, San Francisco. 25v151y

HAYWARD & COLEMAN,

IMPORTERS AND REFINERS

Illuminating, Lubricating,

PAINT OILS!

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
TANNERS' SEAFLOAT, BOILED AND RAW
LINSEED, CASTOR AND CHINA NUT.

SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of Mill
owners and Engineers to our superior PARAFFINE OIL,
which we manufacture from the California Petroleum.
This Oil will not gum. Machinery thoroughly cleaned and
lubricated with it will not heat, and after remaining at rest,
can be started without cleaning. All
single cut of our Paraffine Oil will be forwarded
on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!

27-An elegant and complete assortment on hand. 25
19v15-3m 414 Front street, San Francisco.

BELDUKE & CO.,

OF CONCORD, N. H.;

Long employed at the celebrated firm of Downing & Son,
have opened a manufactory of



Concord Wagons.

Of all descriptions, at No. 820 and 822 Fulton street, be-
tween Fourth and Fifth streets, San Francisco.
Orders received for Buggies, Expresses, and Light and
Heavy Thorough-braces. Carriage Springs made to order.
18v15-1am-6m

WE ARE NOW OFFERING OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of

ALL THE LATEST STYLES
BOTH OF MATERIAL AND FINISH

A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.

J. R. MEAD & CO.,
Cor. of Washington and Sansome streets
8v10

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER:

Black Diamond, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 10 lb. kegs.
Hunters' Pride, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 10 lb. kegs.
do do in 15 lb. kegs.
do do in 25 lb. kegs.
Pacific Mills Silver Shooting, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 10 lb. kegs.
do do in 15 lb. kegs.
do do in 25 lb. kegs.
do do in 50 lb. kegs.
do do in 100 lb. kegs.
do do in 200 lb. kegs.
do do in 400 lb. kegs.
do do in 800 lb. kegs.
do do in 1600 lb. kegs.
do do in 3200 lb. kegs.
do do in 6400 lb. kegs.
do do in 12800 lb. kegs.
do do in 25600 lb. kegs.
do do in 51200 lb. kegs.
do do in 102400 lb. kegs.
do do in 204800 lb. kegs.
do do in 409600 lb. kegs.
do do in 819200 lb. kegs.
do do in 1638400 lb. kegs.
do do in 3276800 lb. kegs.
do do in 6553600 lb. kegs.
do do in 13107200 lb. kegs.
do do in 26214400 lb. kegs.
do do in 52428800 lb. kegs.
do do in 104857600 lb. kegs.
do do in 209715200 lb. kegs.
do do in 419430400 lb. kegs.
do do in 838860800 lb. kegs.
do do in 1677721600 lb. kegs.
do do in 3355443200 lb. kegs.
do do in 6710886400 lb. kegs.
do do in 13421772800 lb. kegs.
do do in 26843545600 lb. kegs.
do do in 53687091200 lb. kegs.
do do in 107374182400 lb. kegs.
do do in 214748364800 lb. kegs.
do do in 429496729600 lb. kegs.
do do in 858993459200 lb. kegs.
do do in 1717986918400 lb. kegs.
do do in 3435973836800 lb. kegs.
do do in 6871947673600 lb. kegs.
do do in 13743895347200 lb. kegs.
do do in 27487790694400 lb. kegs.
do do in 54975581388800 lb. kegs.
do do in 109951162777600 lb. kegs.
do do in 219902325555200 lb. kegs.
do do in 439804651110400 lb. kegs.
do do in 879609302220800 lb. kegs.
do do in 1759218604441600 lb. kegs.
do do in 3518437208883200 lb. kegs.
do do in 7036874417766400 lb. kegs.
do do in 14073748835532800 lb. kegs.
do do in 28147497671065600 lb. kegs.
do do in 56294995342131200 lb. kegs.
do do in 112589990684262400 lb. kegs.
do do in 225179981368524800 lb. kegs.
do do in 450359962737049600 lb. kegs.
do do in 900719925474099200 lb. kegs.
do do in 1801439850948198400 lb. kegs.
do do in 3602879701896396800 lb. kegs.
do do in 7205759403792793600 lb. kegs.
do do in 14411518807585587200 lb. kegs.
do do in 28823037615171174400 lb. kegs.
do do in 57646075230342348800 lb. kegs.
do do in 115292150460684697600 lb. kegs.
do do in 230584300921369395200 lb. kegs.
do do in 461168601842738790400 lb. kegs.
do do in 922337203685477580800 lb. kegs.
do do in 1844674407370955161600 lb. kegs.
do do in 3689348814741910323200 lb. kegs.
do do in 7378697629483820646400 lb. kegs.
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do do in 9578097130411805364739668919689432397617119513647513600 lb. kegs.
do do in 19156194260823610729479337839378864795234239027295027200 lb. kegs.
do do in 383123885216472214589586756787577295904

WATCHMAN.—Mr. Henry S. Smith, of the *Ætna Iron Works*, was "cornered" in the office of that establishment, on Christmas Eve, and compelled to stand and deliver, no, receive an elegant gold watch and chain, which the machinists and men under his more immediate charge had procured for that purpose. A very neat and appropriate presentation speech was made, in behalf of his associates, by Mr. George A. Atwood, as follows:

MR. SMITH:—We have assembled here to-day for the purpose of making the emotions of our hearts known to you. It has, for some time, been our intention to express them, but before the present, no favorable opportunity has presented itself. Knowing as we do, the never-ceasing trials and provocations which besiege you while pursuing your monotonous duties, and feeling within ourselves that some demonstration of our appreciation is due to you, whose life and energies, thus far, have been devoted to and for the benefit of the occupation we now follow. We well know that all employers, and all foremen, object seriously to being watched by their men, and most assuredly they would object to being chained in a free country. (I must remark, that it would take a very expert watchman, and a long chain, to keep run of you most of the time), but in this case the hands find time, without opposing the will of the person watched. We have ever found you ready and freely willing to assist us in all our embarrassments, and under your management and control, you have made our daily avocations comparatively a pleasure, and by showing that you understand and appreciate the exertions of those around you, you have won to yourself their entire confidence and regard. Therefore, permit me, in behalf of my shopmates assembled, to present you with this watch and chain. May it, through life, serve to remind you of the feeling existing in every honest breast around you, and as you look, from time to time, upon its dial, may it bring to your mind the feeling of pleasure it is intended to convey.

The recipient was taken completely by surprise, yet made a happy acknowledgment of the gift, more, however, by acts than by set phrases and words. The watch is of American manufacture, as all watches worn by Americans should be.

PUTNAM'S MAGAZINE.—One of the most pleasing announcements of late, in the literary world, is the promise that the once favorite Putnam's Magazine was to have been revived on the 1st of January. Those on this coast who remember what that magazine was in former times, will be pleased to learn that they will soon be able to renew those pleasant and profitable readings. Messrs. Bancroft & Co., of this city, will be the exclusive publishers for the Pacific coast. It will be the aim of the publishers to make this magazine "solidly useful," and a "medium for positive and accurate information," while at the same time it will be "a live and entertaining visitor." It will be sustained by the best writers in each department, and will be furnished at \$4 per annum in gold coin—post paid by the publishers. Two copies to one address, \$7.50. Address Bancroft & Co., San Francisco, Cal.

[Since the above was in type, we have received the initial number. The promptness with which the public are served on this distant coast, augurs well for the spirit and energy of the publishers.]

Our Patent Agency.

THE PATENT AGENCY OF THE MINING AND SCIENTIFIC PRESS has been signalized with remarkable success during the past two years. The importance to the inventive genius of this coast of a thorough and reliable agency for the solicitation of Letters Patent from the United States and foreign Governments cannot be over-rated, and the Proprietors of the Press, feeling the responsibility which rests upon them, and the reward which must follow the faithful performance of their trusts, will take care to afford inventors every advantage that can be secured to them through a competent and responsible agency upon this coast.

CHICKERING & SONS'



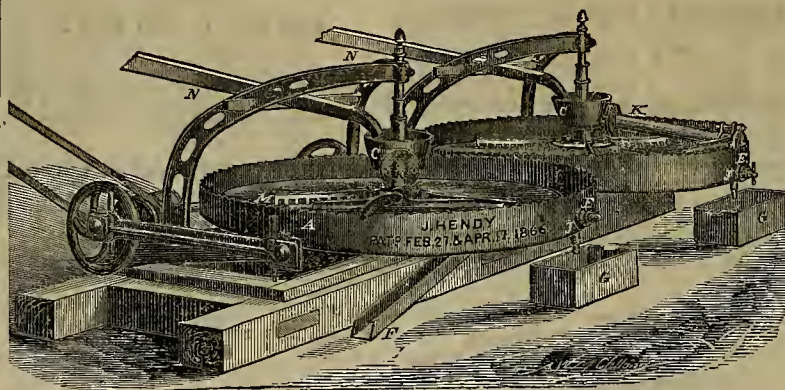
PIANOS
Received the
FIRST PREMIUM
(Gold Medal)

And Decoration of Legion of Honor, at the
Paris Exposition.

KOHLER, CHASE & CO., Agents,

2674 1/2 16p 421 Montgomery street, San Francisco.

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES.

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets.
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (7 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (4 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO. Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M. & M. CO. (3 Concentrators).....	Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Siueala, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

SAN FRANCISCO, October 10th, 1867.
SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co., }
VIRGINIA CITY, Nev., Sept. 17, 1867. }

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,

Union Foundry, San Francisco.

W. T. GARRATT, City BRASS AND BELL FOUNDER.



Cor. Mission and Fremont sts.,

SAN FRANCISCO.

Manufacturer of Brass, Zinc, and Anti-Friction or

Babbet Metal Castings;

CHURCH AND STEAMBOAT

BELLS,

TAVERN AND HAND BELLS AND GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Liqueur, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder, and Copper Rivets, &c. Orange Cocks, Cylinder Cocks, Oil Globes, Steam Whistles, &c.

HYDRAULIC PIPES AND NOZZLES

For Mining purposes, Iron Steam Pipe furnished with Fittings, &c. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal".

—Highest Market price paid for OLD BELLS, COPPER AND BRASS.—

MAGAZINES.	Per An.	W. E. LOOMIS, News Dealer
Harpers.....	\$ 4 00	AND STATIONER,
Atlantic.....		Southeast corner Sansome and
Godley.....		Washington streets,
New York Ledger.....		SUPPLIES ALL
Blackwood.....		EASTERN
Hours at Home.....		PERIODICALS
Good Words.....	3 00	By the Year, Month or Number.
Peterson's.....		
Arthur.....		
Lady's Friend.....		
Harpers Weekly.....	5 00	
Chimney Corner.....		
Literary Album.....		
London Society.....	6 00	
All the Year Round.....		
London Ill. News.....	15 00	

PACIFIC

BARREL AND KEG COMPANY.

Having now in operation extensive and improved Machinery for the manufacture of

BARRELS AND KEGS,

Are prepared to contract

AT LOW RATES

For supplies of such stock as may be required. Will also contract for

Stave Timber,

Of different kinds, delivered here, or at any shipping point in the Interior, or upon the Coast.

Orders and communications to be addressed to

FLINT, PRABODY & CO.,

Agents Pacific Barrel and Keg Co.,

23v15-3m 498 California street.

UNIVERSITY COLLEGE SCHOOL OF MINES.

Corner Geary and Stockton streets.

ON THE SIXTH DAY OF JANUARY, 1868,

A course of Lectures on

Chemistry, Metallurgy, Mining and Geology,

Will be commenced, and continue for four months from date. The special objects of these Lectures will be to afford those practically engaged in Metallurgical and Mining pursuits, full and complete information on all points bearing on the useful minerals of this coast, together with practice in the Chemical and Metallurgical Laboratories.

Price for the full Course of Lectures and Practice in the Laboratory, \$120.

Terms for Lectures alone, \$10 for each subject

For particulars apply to

THOMAS PRICE,

University College, San Francisco.

SIXTH INDUSTRIAL EXHIBITION

UNDER THE AUSPICES OF THE

MECHANICS' INSTITUTE,

SAN FRANCISCO.

The undersigned, acting under authority from the Mechanics' Institute of the City of San Francisco, take great pleasure in announcing to the public that they have resolved upon holding an Industrial Exhibition in the month of August, 1868, on a much larger scale than was ever before attempted on this coast; and they make this early announcement of their intention, that all who may desire to participate shall have ample time for preparation.

A programme, embracing rules and regulations for the government of participants, with a list of Premiums to be awarded, etc., is receiving such earnest and careful attention as the importance of the enterprise demands and in due season the same will be made public by circular letters widely distributed, and by advertisements in the leading journals of this coast.

Executive Committee:

GEO. K. GLUYAS,	P. J. O'CONNOR,
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Disengaging Boat Tackles.

Much attention has been directed, during the past two years, to devising more perfect arrangements for the instantaneous disengagement of boats from their tackle, when required to be let down at sea, especially

than half the boats of a crowded ship have often been thus destroyed, with their human freight, which casualties might have been totally avoided by the use of any one of several disengaging devices invented during the last two years. We have already fully described and illustrated a California

Fig. 1 represents the apparatus as attached to a boat as the boat is suspended to the davits of a vessel.

In Fig. 2 is shown a section of the boat, and A, B are the rods running under the gunwale of the boat, through thimbles or eye-holts secured to the side of the boat;

the forward and after ends of these rods pass through sockets, C, C, secured to the stem and stern of the boat, for the purpose of receiving the links, D, D, into which the tackles, E, E, are hooked. The other ends of the rods are attached to a lever, F, which is pivoted amidships. To disengage the boat all that is necessary is to lift the lever F, and the rods, A, B, are drawn back out of sockets, C, C, liberating the links, D, D, and the boat evenly descends into the water.

Fig. 3 is an enlarged view of the socket with the shackle disengaged.

The arrangement is *positive* in its action; it cannot be operated wrong. The lever which operates it being seated in the throat of a knee on the top of the thwart, cannot be forced down; if lifted up it is sure to disengage the boat. The apparatus cannot be obstructed by ice, as it is placed in the upper part of the boat, under the gunwale. To prevent corrosion the rods and levers are galvanized, and the sockets and eye-bolts are made of composition. In putting on the apparatus, the length of the rods may be adjusted by the right and left screw-coupling, G, G, so as to make them of equal length in the sockets, and to permit them to draw out about an eighth of an inch clear of the shackle.

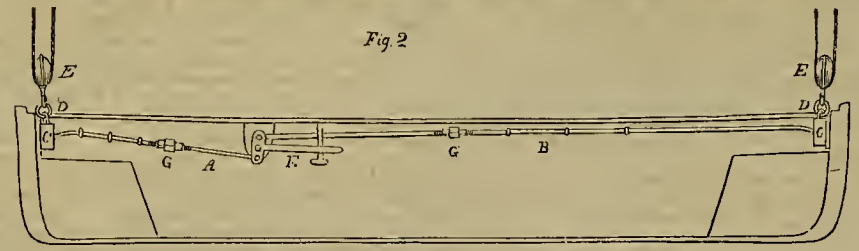
This apparatus has been approved by the United States Board of Supervising Inspectors, and after numerous trials by the local inspectors of steam vessels in Boston, and in presence of some of the most competent engineers, mechanics, and steamboat captains, it has been pronounced a most *sure, simple, and effective* arrangement.

At a trial of the apparatus on three life-boats belonging to the G. B. Upton, twelve men were placed in the center of the boat, and then again at one end of the boat, while it was suspended; and at each time both ends of the boat were liberated simultaneously from the tackles in the most perfect manner. Trials have been made with the apparatus on board the boats of a large number of steamers with equal success.

Donald McKay, the eminent ship-builder of Boston, speaks in the highest terms of the value and efficiency of the device. The invention was patented Jan. 22d, 1867, by I. S. Hall, of Boston, and Andrew Burnham, of Chelsea, Mass. It was first described and illustrated in the *American Artisan*, of March 13th, 1867. The invention is now owned by Nathaniel McKay of East Boston.



Fig 2



McKAY'S PATENT LIFE-BOAT DISENGAGING TACKLE.

during a gale of wind, or at other times of great or sudden danger. It is well known that many lives are lost in this operation, when, by the imperfect modes of disengagement heretofore universally employed, rendered still more dangerous by the hurried mode of disengaging at such times, one end is held in suspension for an instant longer than the other. The consequence is that a boat so disengaged goes down endways, or at a plunging angle, which either spills the unfortunate crew into the sea, or so drops the boat that it plunges headlong beneath the waves and is swamped at once. More

invention of this kind, which was patented through this office, and which has met with great favor at the East and in Europe. We herewith append an illustrated description of a more recent invention, known as McKay's Disengaging Tackle for Life Boats, by the employment of which both ends of a boat may be simultaneously released, and with its complement of passengers safely dropped into the water, while the vessel is under speed, or otherwise, and by which boats can be launched safely by day or by night, under any circumstances, without peril to life.

California Silver-Gold Tellurids.

MESSRS. EDITORS—The MINING AND SCIENTIFIC PRESS of Jan. 4th, 1868, contained an abstract of a communication of Professor Silliman to the California Academy of Sciences, relative to the occurrence of Tellurium in California. Prof. Silliman alludes to the telluric gold found at the Melones mine, on Carson Hill, and suggests that the tellurium mineral detected by him at the Golden Rule mine and at the Raw Hide Rancho mine, is identical in appearance and physical characteristics with the Melones minerals.

It is further stated that the tellurids, mentioned above, appear to be referable to a new species, *hitherto undescribed*, and that the mineral contains more silver than gold. It is a mistake in Professors Dana and Brush to suppose that these tellurids, especially those found in the Melones mine, which are more particularly referred to, have not been heretofore described.

Some two years ago I had occasion to examine the telluric gold of the Melones mine, the result of which appeared in the MINING AND SCIENTIFIC PRESS, May 20th, 1865. The proportion of gold and silver differs very much from the known telluric gold minerals, analyzed by Klaproth, Borellius etc., also its chemical and physical properties differ from the *Sylvanite*, so as to characterize this mineral as a new species. A remarkable appearance of the telluric gold from the Melones mine, is its changing of color from the dark steel gray into yellow, when a small fragment is placed on a hot coin, or cautiously heated with the blow-pipe on a piece of charcoal, so as to avoid smelting; under the microscope the surface of such a fragment appears thickly coated with pure gold globules; hence its yellow color.

The specific gravity is 9—9.4. It contains—

Gold.....	24.80
Silver.....	40.60
Tellurium.....	35.40 (7)

Owing to the great variety of minerals found in the ore of the Melones mine, only small fragments of the pure telluric silver-gold could be obtained, and for this reason the analysis was made by means of the blow-pipe. The result, however, is given as an average of seven samples, carefully assayed, the variation of which was inconsiderable. The tellurite of the silver-gold is accompanied by tellurite of silver, native tellurium, antimonial nickel, iron pyrites and free gold.
G. KUSTEL.

Communications.

In this DEPARTMENT we invite the FREE discussion of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER EIGHT.

INCONVENIENCES ACCOMPANYING THE EMPLOYMENT OF CHLORINE IN SOLUTION WITH BRINE.

It has already been shown that in proportion as the temperature of an aqueous solution of chlorine increases from 48° to the boiling point, its power of absorbing that gas decreases; yet, even at 131° it has been shown that the volume of chlorine present in a saturated solution of salt may, when saturated with chlorine gas, amount to an equal volume of chlorine in the gaseous form. The activity of chlorine in solution, notwithstanding it may be present in equal volume, is however very inferior in its action in dissolving gold, as compared with that substance in the gaseous condition. This fact appears to be practically recognized by Mr. Calvert in his whilom recommendation for the reduction of gold ores by means of a solution of chlorine; for, in his paper on this subject, read before "The British Association," he mentions that, in order to expedite the operation, it is requisite to draw off and return the solution repeatedly (four or five times), in order to produce the fullest and most rapid effect. The only comment on this that need be made at present, is, that where gaseous chlorine alone is employed, no such repeated withdrawal and recharging is required. The explanation of this difference of action is simple, but would be very lengthy, and therefore must be overlooked for the present.

It will suffice for present purposes to call attention to the fact previously explained that 1,000 lbs. of water, saturated with salt and chlorine, would hold in solution, at a temperature of 131°, sufficient of the latter to dissolve \$1,700 worth of gold.* Taking the present yield of Comstock ore as typical of the bulk of mixed silver and gold ores, other than those containing large quantities of antimony or lead, or both, it may be safely taken as the basis of calculation that such do not, by fire assay, contain on the average more than \$50 worth of bullion per 2,000 lbs. of ore—distributed between the two metals as follows: \$40 silver, \$10 gold. Now to leach out the \$40 worth of silver, according to the example above quoted from Rivot, would require 2.625 tons solution, or 5,250 lbs. If amongst this great mass of solution half an ounce of gold, or, in other words, two hundred and forty grains (\$10 worth, or half an ounce troy) is disseminated, it would be in the ratio of one grain to 153,166. Even in laboratory practice the tediousness attendant on the precipitation of the ter-chloride of gold, even when in the ratio of one in 40,000 is well known; if such is found to be the case when working only with test tubes and spirit lamps, it may be conceived how enormously this tedium will be increased when such a diluted solution has to be treated by tons. Further, it is well known that when one grain of gold is dissolved in the ratio of 100,000 grains of solution, its precipitation, when acting with quantities, is practically an impossibility. As 5,250 lbs. equal 36,750,000 grains, it follows that the latter figures contain 100,000—a little over 367 times; in other words, more than would suffice in practice to retain in solution all the gold contained in such ore, unless further concentrated. It is quite true that the inconvenience last pointed out is one that may be in a considerable degree avoided by employing the chlorine solution

only, either in the first or last instance, and retaining such solution separately after being drawn off; but, even if disseminated only through half a ton, which is the lowest possible estimate that can be made, that quantity would retain 70 grains in solution or \$2.80 worth of gold, rather more in fact than 25 per cent. of the total value of the gold present in the ore; whereas, by careful management in the employment of chlorine in the gaseous form, the whole of the gold may be obtained in solution, not exceeding twenty pounds in weight, in which comparatively concentrated condition the precipitation by means of the ordinary precipitant (proto-sulphate of iron) would be rapid, the gold being present only in the proportion of one in 566, and the total gold in solution incapable of becoming precipitated would amount to little more than one grain, or say five cents in value, in place of \$2.80, as shown by the former example, thus forming a direct saving of gold equal to \$2.70 per ton, by employing gaseous chlorine in place of being in the state of solution.

CASES WHERE THIS METHOD MIGHT BE ECONOMICAL.

Allusion has already been made to the fact that cases may occur where the copper present in the ore, as an accompaniment of gold and silver, is in sufficient amount to make its reduction also an economical object, that this method may be advantageously adopted with such ores, and that such are probably some of the varieties alluded to by Mr. Kustel as having been so treated with advantage by Patera and Roeszner. It was at the same time named, that certain varieties of auriferous and argentiferous ores might possibly be advantageously reduced by brine and chlorine, simultaneously employed. In order to make these latter cases better understood, it will be well, in the first place, to note the difference between the varieties alluded to, and the great bulk of the ores containing gold and silver found in the various districts in which we feel more specially interested; first, as respects—

California Gold Ores.—These usually produce the metals named in the form commonly denominated 600 to 900 fine, the latter being rather rare, and the former comparatively so. The bulk may be taken at an average of 850, if such ores were strictly analyzed. That, in many cases, the gold obtained in battery, amalgamation is finer than above set forth, is freely admitted. The reason, however, for the fact arises from a circumstance, which, I think, has been wholly overlooked by all but the writer, viz: that from causes, the reason for which he strongly suspects, but which he is not enabled positively to assert as a fact, that in what is commonly known as the losses sustained by "float gold," no inconsiderable portion is caused, in a great measure, in consequence of being accompanied by silver in the proportion (by weight) of from two, and occasionally three of the latter, to one of the former. I may further add that the float silver here alluded to very probably is in the state of chloride. On some future occasion I may, perhaps, dwell more at length on the important subject just glanced at, as it forms no inconsiderable source of the losses sustained in connection with the preparatory indispensable pulverization, and the further not less important, though almost utterly neglected, concentration of ores prior to subsequent treatment.

It may be pretty safely affirmed that, with California gold ores, silver exists in combination with the gold in the form of an intimate alloy of from one to five-twelfths of the weight of gold. In many instances, however, although an assay button would show the latter named proportion, it would be a wrong inference to conclude that, consequently, such must be the actual alloy of the metals when existing in the state of ore; for it occasionally, and not very unfrequently, occurs in this State and many other countries that the quartz not only contains pyrites, but galena (sulphide of lead) also; in which case it will generally be found, on assaying, that the silver combined with the gold greatly predominates.* With such ores, it would therefore be wrong to infer, merely because the assay button is found to consist of an alloy largely mixed with silver; therefore, the same method for reducing the ore from which it was obtained is the appropriate one, which may be well adapted to attain the same object in cases where the gold and silver actually exists as an alloy, consisting largely of the latter metal. Thus, gold rock may contain gold as an alloy in which silver exists only as one-twenty-fourth part; yet, a button may be obtained from such ore by fire assay, showing an alloy in which silver may probably exist in the ratio of ten parts out of twenty-four, the extra nine parts having been de-

rived from the galena present in the ore. The illustration just given will probably be the means of satisfying reflecting minds that, in order to produce the most beneficial results, change of method is required according to the character of the ore; and further, that in order to arrive at a correct conclusion as to what would be the best method under a given set of circumstances, an analytical investigation is not unfrequently required much beyond that of making a mere mechanical assay.

Electrum.—A native alloy of gold and silver is occasionally found in which these metals exist as an alloy in atomic proportions, that is, 108 parts silver, combined with 199 parts gold.* This alloy was named by the ancients *electrum*. It is a rare substance, and is found most frequently in the mines of Hungary and Transylvania, occasionally mixed with a slight amount of copper. I suspect that it was this alloy which was chiefly alluded to by Mr. Kustel as the ore employed in the experiments of Patera and Roeszner, and those of Mr. Poumares, alluded to by Dr. Lanszweert; possibly, however, in so divided a form, and intermixed with that variety of sulphides which, in consequence, has acquired for them the title in California of rebellious, and with experts that of refractory ores; so much so that simple amalgamation is found insufficient for their reduction; as, otherwise, I cannot conceive why this alloy could not be extracted by means of mercury without any preparatory process, chlorination appearing to be particularly undesirable in such circumstances. If, however, the *electrum* existed as an alloy, in which both metals were combined in a mineralized condition, it is quite conceivable that the method, as described by Poumares, might prove the most effective.† In such a case, the chloride of silver would evidently form a film over the gold, unless dissolved as quickly as it was formed by some menstrua, such as hot brine; which film, however, would be perpetually, but slowly, renewed by the chlorine in solution, and as constantly requiring removal. In such cases, perhaps chlorine in solution, in hot brine, will be found the most expeditious and economical process. Ores of this class, however, so far, have not been found; or only sparsely, in Nevada and California, as may be gathered from the following sketch of the physical condition of the gold and silver, when found in conjunction in the—

Comstock and Similar Sulphureted Silver Ores.—In which the gold almost invariably exists in the metallic condition of gold, alloyed only with about one-tenth of its weight of silver, although when the whole of the hullion is reduced and formed into one mass, the alloy obtained is usually found to consist of only from one-fiftieth to one-sixtieth of its weight of gold, the balance being silver. I have not had the opportunity during the last five years of personally ascertaining whether the facts just stated are fully sustained at the present moment; but, at the time indicated, I can truly aver that in every analysis made by myself on Comstock ores, in order to obtain an insight into the physical condition in which the precious metals existed, either alone or combined, the facts above stated were found to invariably occur; and from the inspection of some highly concentrated tailings recently furnished me from the same quarter, I do not see any reason to suppose that the facts are changed. The only features that have changed in connection with that celebrated vein (for I hate the misleading term, "lead,") since its discovery, are that as the vein became developed in depth the ores became gradually poorer, the gold becoming so in an accelerated ratio; thus fully confirming what I predicted in 1859-60, in the columns of the *Evening Bulletin*, and have repeatedly asserted since. This warning, in place of being heeded, has been treated with contempt. The consequence of neglecting which has been that no precautionary steps have been taken to meet the emergencies required by the coming state of things, which was certain to arrive; the result of which is now being seen in the larger part of the mines situated on this vein becoming assessment in place of dividend paying ones, and the whole are rapidly approaching the former described condition; instead of which, a reversed condition of things ought to have existed, and would in future be reversed, if those interested would only act with ordinary discretion.

[In somewhat too hurriedly drawing up the paper which appeared on the 28th ultimo, it was omitted to mention the amount of chlorine which would be absorbed by brine of a temperature of 131°. This omis-

sion I had rectified in a manuscript which was in the hands of the Editor of the MINING AND SCIENTIFIC PRESS on the Monday preceding the appearance of Dr. Lanszweert's letter of last week. Had Dr. L. taken the trouble of examining the figures given by me in that article, as to the estimated amount of chlorine which would be absorbed by brine of a temperature of 131° he would have discovered that I deemed it sufficiently near for calculation, to estimate the absorbability of chlorine under such condition, as equivalent to a volume of gas to the volume of solution employed.

To other extraneous observations I shall reserve my reply until this series is finished. In the meantime, if a difference exists respecting quantities and values, I wish common and well understood standards to be adopted, viz: a ton of 2,000 lbs. and values at dollars and cents; as these are the terms more generally employed by practical men. I may now observe that jocular remarks are not petulant ones, though the joke may be a lame one, which I admit mine to have been. Next, *warm* is a term employed to indicate a temperature lower than a *hot* one.]

"Formation, Distribution and Age of Igneous Rocks."

EDITORS PRESS.—It has ever been the way that new and important truths, either in the broad fields of science or theology, have had to displace errors grown venerable with age or precedent. Before the manuscript, under the above heading, left my hands, I remarked to a friend, that while I was thoroughly convinced of the correctness of the idea of an eruptive era of metaliferous quartz, and of its being perfectly in accordance with the plan of the distribution of igneous rocks; yet I anticipated that a certain class of school-men, who seem to be quite numerous, and who have much to unlearn, are so committed to false theories that they contest its general adoption inch by inch. I have a few text-books on chemistry, which have been my companions and advisers for a score of years, to which have been added, from time to time, text-books on astronomy, geology, mineralogy, etc.; and, beside, I have the great Book of Nature before me, and have dwelt amongst the Sierra Nevada the best part of sixteen years, and yet have not arrived at the conclusion which "Criticus" indicates. On the other hand, it is some years since I became aware that the geology, or the geognosy, of metal-bearing veins, and of the more ancient auriferous deposits of the Sierra Nevada, had never been written. Moreover, I have sought the truth diligently, and think I have a tolerably clear perception of it.

I challenge "Criticus," and the school of scientists to which he belongs—the whole generation of them—to show, if they can, that there has not been a period in the past history of the earth when metal-bearing quartz was erupted, and that it did not occur during the old red sandstone era. His or their efforts in this direction might be very instructive; possibly they might prove to be very amusing. If I failed in my recent endeavor to make my conceptions of the plan of the distribution of igneous rocks intelligible, I indulge the fancy that the above challenge is reduced to terms which *may* come within the range of "Criticus'" comprehension. Meanwhile I trust it will be considered pardonable in me if I should not place full confidence in all of the assertions of "Criticus," against my own convictions, especially when those convictions are fortified by years of earnest study. "Criticus" may have occasion to suspect that he is not so *thoroughly* conversant with the operations of nature, after all, long before he gets through with the little job above indicated.

F. A. HERRING.

Forbestown, Dec. 31, 1867.

IS A QUARRY A MINE.—A late and important English suit hinged on the question whether a quarry worked for slate, was a mine, (the question being a bequest of mining interest.) The judge decided that inasmuch as the quarry was worked chiefly underground, it was a mine. If it had been worked altogether above ground, it could not be considered a mine.

* Provided the gold is in a sufficiently divided form. When the gold is coarse, chlorine is far from being so effective.

* So generally is silver only found in galena that it was, until about three years ago, asserted by San Francisco-called experts, that gold never was found in galena.

* Klapproth gives the assay of *electrum* as 64 gold, 36 silver. Ruse, for that found at Vorospatak, as 60.49 gold, 39.51 silver.

† It is difficult to conceive how gold could, even as a silver alloy, exist in such a mineralized form.

Mechanical.

CHEMICAL CHANGES IN IRON.—The tendency of iron to pass from fibrous or tough to a crystalline or brittle condition, is promoted in various ways. It is recorded that Dr. Nood, once seeing a large quantity of iron chain lying about, and learning that, though but little worn, it was laid aside in consequence of the breaking of some of the links, he examined several from different parts of the chain. In the course of his observations, he noticed that a single smart blow with a hammer was sufficient to snap the metal into pieces, the fracture of which showed a highly crystalline appearance. The Doctor then submitted portions of the broken links to a strong heat, in a forge, and allowed them subsequently to cool, very slowly, under a bed of fine sand. After the lapse of twenty-four hours, the metal is said to have recovered its tenacity to such a degree, that it could no longer be readily broken under the hammer; and when it did finally yield under repeated blows, it was found to be quite fibrous—all trace of its crystalline structure having disappeared.

It is well known that constant and long continued repetitions of heating and cooling of fibrous iron will render it crystalline. We are told by a gentleman who has had much experience in the use and sale of caloric engines, that the greatest drawback to their use arises from this very peculiarity of iron. Parts of the caloric engine, it is well known, become very hot, when working, and, of course, cool down when the engine stops. A constant repetition of these changes of temperature, as in an engine working only during the day, soon destroys the parts exposed to such changes. This result is, probably, due to the mechanical action of expansion and contraction in the changes of temperature—the same being somewhat analogous to that of vibration.

PAPER BELTING.—Machine belting is now being manufactured from paper by J. B. Crane, of Dalton, Mass. Most of the machinery in Mr. Crane's mill is run with paper belting, and the large driving-belt in Col's mill at Pittsfield, Mass., is of the same material. Mr. Crane has made a paper belt seventy-five feet long and eight inches wide. The paper belting is said to have all the merits of leather and some advantages. Time only will attest the truth of this assertion.

OTHER NEW USES FOR PAPER.—A new process has been discovered by which paper can, by chemical and mechanical influences, be rendered as hard as hickory wood, and may be manufactured into a variety of articles hitherto made of wood, tin, copper and iron. The substance produced is a non-conductor of heat, impervious to the action of acids, and not liable to be injured either by heat or cold. It can bear a heat of 300° Fah., without injury. When the preparation is soft it is shaped in molds and water pails, wash-basins, pitchers, etc. When further improvements are made articles formed of paper will come in competition with crockery and china. The White House and the Departments in Washington have already been supplied with sets of paper water-pails, ice-coolers and spittoons. A factory at Greenpoint, L. I., is now engaged in developing the process, which of course is a secret.

INVENTIONS KEPT SECRET.—Mr. Bessemer has worked in secret for many years an invention which he felt he could not patent in safety. No one but the inventor and two of his nearest relations has ever seen this machinery. The manufacture has proved highly remunerative, and Mr. Bessemer now enjoys a monopoly of the article manufactured.

One of the largest firms in Birmingham, Eng., employs very ingenious machinery in the manufacture of forks and spoons. This machinery cost an immense sum to bring it to perfection. It is not patented, no stranger is permitted to see it, and the few men employed in working it are paid large wages, and sworn to secrecy as regards its construction.

WINDMILL POWER.—Smeaton ascertained that the effective power of a windmill with sails of the best form, and about 15½ feet radius, with a breeze of 13 feet per second, is about one-horse power.

COST OF EXPERIMENTING.—It is said that the first iron beam ever rolled in America cost \$75,000. When the "Cooper Union" was projected, rolling machinery costing \$20,000 was put up, but found too weak to produce beams of the requisite strength. Experiment after experiment was made, till the money spent in that way amounted to \$75,000, when the work turned out answered the intended purpose. Nine-inch beams have been common now for many years in large fire-proof buildings, but the demands of architecture are requiring greater dimensions, and an engine has been constructed to roll iron beams forty feet long and twenty inches wide. American ingenuity is never at a loss to meet the requirements of advanced civilization.

TESTING SWORD BLADES.—The Austrians test sword blades by machinery. They fasten the sword by its hilt into a frame and submit it with a known and adjustable velocity, to a certain number of strokes at the mid length of the edge against a block of beech wood. The sword is also subjected to a slanting or glancing blow at a given angle and velocity against the side of a cylinder of hard wood. The edge is tested by blows against a piece of wrought iron of a given breadth, and proof of the blade's elastic temper is obtained by bending and suddenly releasing it within certain limits. The peculiarity of these trials is that the nature and extent of every test is determinative and may be made adjustable.

THE PRODUCTION OF IRON.—The yearly production of pig iron by the furnaces of Great Britain forty years ago was a little under 700,000 tons, and that of the United States the same year about one-fifth as much, or 140,000 tons. The production last year may be taken in round numbers for Great Britain 5,000,000 tons, and the United States at 1,250,000 tons, showing an increase, the effect of which upon the whole world cannot be estimated by mere figures. The total product of the world at the two periods may be stated at a little over 1,000,000 tons forty years ago, and 9,000,000 per annum at present.

CASTINGS IN SOFT STEEL.—It is noted as a fact in casting steel to patterns, that a Sheffield (Eng.) firm have cast a hydraulic cylinder eight inches in diameter and two and a half thick, perfectly sound and malleable. The Wm. Butcher Steel Works, Philadelphia, Pa., have recently cast a hydraulic cylinder 12 inches in diameter and but 1½ inches thick, perfectly sound and malleable, which is a much more difficult casting to make, on account of the thinness of the metal.

THE SMALLEST PRACTICABLE RAILROAD CURVE is an arc of a circle whose radius is 720 feet. Consequently a railroad would have to be nine-elevenths of a mile long in order to make a complete circle. A railroad embankment must be three times as thick at the base as its perpendicular height. In other words, the slope, in order to stand without sliding, must not be more than about thirty degrees from horizontal. The highest embankment in the world is on one of our Western roads, 240 feet, with a base 720 feet thick.

THE AGINCOURT'S ENGINES.—Probably the greatest indicated power ever yet exerted in a single pair of engines, was that attained on the recent trial of the *Agincourt*. With a nominal power of 1,350 horses, the indicated horse power was 6,867. With half boiler power, 3,115 indicated horsepower was obtained. The full piston speed, with 61½ revolutions per minute, and four feet four inch stroke, was 533 feet per minute.

THE VELOCITY OF STEAM, when flowing into a vacuum is about 1,350 feet per second, when at an expansive power equal to the atmosphere; but when at ten atmospheres the velocity is increased to 1,780 feet; and when flowing into the air under the latter pressure it is only about 650 feet per second.

A PUTTY of starch and chloride of zinc hardens quickly, lasts for a long time, and may often be advantageously used as a stopper of holes in metals.

The tubes of tubular bridges are generally painted white, so as to increase the radiation, and thereby diminish the effects of contraction and expansion produced by the alternations of the atmospheric temperature.

FRICTION.—According to experiments made by M. Morin, the friction of steel upon cast iron is nearly double that of brass upon brass.

Scientific Miscellany.

Substitutes for Animal Charcoal.

Much research has been expended in efforts to provide a substitute for animal charcoal, for use in decolorizing sugar in the process of sugar refining. Very little success, however, appears to have attended such researches until the recent experiments of Dr. Ziegler. The Doctor's substitute consists of a mixture of kaolin or pure clay and carbon, in place of animal charcoal. The clay is made into a stiff paste with a solution of glue, fat, oil, resin, or even with coal tar. This is made into short cylinders, about an inch in diameter, by means of wooden molds. These cylinders are firmly compressed until they are about half an inch long, then dried and burned in a close retort, to reduce the organic matter to a simple carbon. In order to make the mixture the more porous, common salt or salt of potash is added, which, after burning, is washed out with water.

A filtering substance so prepared is said to be even more effectual as a decolorizer than the ordinary animal or bone charcoal. If such should be the case, the discovery promises, with the various modifications to which it is applicable, to be one of considerable value in the manufacture of sugar, and for other decolorizing or deodorizing purposes.

A Sea-weed Substitute.—In connection with the above, it will be interesting to note the fact that a Mr. Stanford has recently exhibited to the British Pharmaceutical Conference a new kind of charcoal, which appears to possess many valuable properties. This substance consists of the coal produced from the long stems of a species of sea-weed—*Laminaria digitata*—which is thrown up in great abundance in certain localities, especially upon the western shore of the Hebrides. This sea-weed is collected and dried in the air. When first thrown up, it is in the form of long, fleshy stems, seven to eight feet in length, and about the thickness of the wrist, but when dried, presents hard, horny, flexible rods, about the size of the finger. When carbonized, these stems swell out into a highly porous charcoal, about three times their original volume. This charcoal contains about 40 per cent. of salts, free from sulphides, and is very rich in iodine.

After lixiviation, the residual mass has the following composition, with slight variations:

Carbon	60
Phosph. lime	4
Carbonate of lime	26
Carbonate of magnesia	6
Silicic acid	5
Alumina	2
Sulphate of potash	5
Chlor. iodine	5

—and about 1.25 per cent. ammonia.

It generally contains, in addition, about 15 per cent. of water, which it is very difficult to separate, the charcoal having a most powerful affinity for moisture.

Attention was called to the remarkable analogy between the chemical composition of this and of animal charcoal, which appeared to class it with that substance, and render it unlike any other charcoal of a vegetable origin. It cannot be used for sugar refining, on account of the large percentage of carbonate of lime; but it possesses decolorizing and deodorizing properties, superior, weight for weight, to the best animal charcoal; tested with solution of caramel it decolorizes 25 per cent. more than animal charcoal under the same conditions.

It has been subjected to continued filtration of the thickest town sewage, for several months, without the least clogging, and its efficacy after this treatment remained unimpaired.

This communication was merely preliminary, the author promising the results of further investigation on this and other specimens of sea-weed charcoal.

The tangle charcoal was brought before the meeting as a cheap and efficient substitute for animal charcoal in its application other than that of sugar refining; and its introduction excited an interesting discussion.

ACIDS IN SHELL FISH.—M. Dumas, of Paris, affirms that M. de Luca has found in the liquid contained in the living mollusca about three per cent. of sulphuric acid, and that the same mollusca, plunged into water, disengages a considerable quantity of carbonic acid.

CURIOUS EXPERIMENTS WITH PROJECTILES.

Some experiments, recently made by M. Melsen, have excited great interest at the French Academy of Sciences. M. Dumas stated that a leaden ball, falling from the height of about one meter into water, drew with it twenty times its volume of air. The same ball projected by powder to the interior of a vertical cylinder filled with water and closed at both ends by means of plaster diaphragms, carried with it 100 times its volume of air. When the initial velocity of the ball was small, the hole made in the plaster was about the same as the diameter of the ball, but when the velocity was greatly increased, the size of the hole was excessively large, and a double border was formed around the holes where the ball entered and passed out of the cylinder. The cause of the increase of the size of the hole has not been ascertained. These curious results led Melsen to try the experiment of shooting through a pane of glass. He ascertained that contrary to the general belief, a very high velocity of the ball as well as a very low velocity, shattered the glass, while a medium velocity made a smooth round hole.

LIGHTING UP THE STOMACH.—M. Millott, of Paris, has devised a method of introducing light of intense brilliance into the human stomach. He passes into that organ two platinum wires, connected with the poles of a powerful battery, the apparatus of Middeldorff being preferred, and in this way kindles a very bright light in the entire cavity. The principle is the same as that of holding an egg before a bright light to ascertain its condition by its translucency.

It is presumable that the two main wires are of iron, and that they are connected at the part which reaches lowermost in the stomach, by a fine, naked platinum wire. The retardation of the current at that point, so prepared, would produce a light of intense brilliancy.

TO PRINT LETTERS BY SUNLIGHT.—Dissolve chalk in aquafortis to the consistence of milk, and add to that a strong solution of silver. Keep this liquor in a glass decanter well stoppered, then cut from a paper the letters you would have appear, and paste the paper on the decanter, which you are to place in such a manner that its rays may pass through the places cut out of the paper and fall on the surface of the liquor. The part through which the rays pass will turn black, while that under the paper will remain white. You must observe not to move the bottle during the time of the operation. *Chemical News.*

NEW MIXTURE FOR MATCHES.—Prof. Bottger has found that a mixture of eight parts of teroxide of thallium and one part pentasulphide of antimony (commonly called the golden sulphur) has the property of igniting by friction. A mixture of teroxide of thallium and powdered sulphur ignites with a sharp explosion when struck. The pierate (?) of thallium may be exploded in the same manner. However, the scarcity of thallium will prevent any use of these compounds for commercial purposes.

A PROCESS FOR DEODORIZING PETROLEUM OIL.—That very industrious technical chemist, Dr. R. Wagner, tells us that the disagreeable odor of petroleum oil can be taken away by treating the oil with a solution of plumbate of soda. This is only a solution of oxide of lead in caustic soda, and will certainly remove all such odor as sulphur compounds might communicate to the oil. How far it may affect other smells we cannot tell without experiment.

IODIDE OF SILVER PHENOMENON.—Pizeau, in his researches on the dilation of minute crystals, found the chlorides, bromides and iodides following the same law of expansion by heat, with the exception of iodide of silver. The crystals of the latter salt actually contract instead of dilating by the application of heat.

THALLIUM IN COLORADO.—Mr. Z. W. Chase, while prospecting in Colorado during last year discovered, near Breckenridge, Summit county, a silver lode, bearing galena. He states that the vein is about six feet in width, and that an average sample of the ore, analyzed by Dr. Charles T. Jackson, contained a little over three per cent. of the metal thallium.

The velocity of the sound wave in air of the freezing temperature is 1,090 feet a second. The velocity of sound in air increases 1-6 feet for every degree centigrade of temperature.

From the Commercial Herald and Market Review.

MINING REVIEW FOR 1867.

Discovery of Gold in California.

The nineteenth day of the present month inaugurates the twentieth anniversary of the discovery of gold in California. This metal had previously been reported by the early adventurers on the coast as existing here in great abundance. One of the historians of that period, in his account of the visit of Sir Francis Drake to California, made more than three hundred years ago, declares that no part of the earth could be taken up that did not contain a reasonable quantity of gold; a statement, so far as any actual knowledge of the fact was concerned, belonging, no doubt, to that class of fictions so frequently indulged in by those who had visited strange and distant lands at that day. But, while those exaggerated tales were so manifestly inventions of the imagination, gold really did exist here in unexampled abundance; and there is little question but that the Catholic missionaries were cognizant of the fact, though from prudential motives preventing its attaining publicity as far as possible. Small quantities of gold dust were obtained by washing auriferous earth found at San Isidro, San Diego county, in 1828; a silver bearing lode having been discovered at Alisal, Monterey county, twenty-six years before. Further deposits of argentiferous ores have since been met with at this point, but they have thus far proved of too low a grade to warrant transportation elsewhere for reduction, there being no local facilities for the purpose. Traces of work performed long since on a rich gold and silver bearing ledge situated in San Gabriel Canyon, 22 miles northeast of Los Angeles, are yet visible, the Indians declaring that the Padres know of its existence, but prohibited them from working or speaking of it. In San Francisco Canyon, 45 miles northwest of Los Angeles, placer diggings were found as early as 1833, which continued to be worked steadily, when there was a sufficiency of water, for more than ten years; having been abandoned only on the discovery of the rich placers further north. Since that event, even, these early diggings have occasionally been worked on a limited scale, and with moderate success. The annual value of the gold taken out here prior to 1848 amounted to about \$6,000, making an aggregate collected up to that period of \$60,000. But not only had limited washings of the sand and gravel been carried on long prior to the American occupation of the country, but attempts had also been made at working auriferous quartz; a Frenchman named Barie having engaged in this business with arrastras, near the Mission of San Fernando, as early as 1843; from all which it becomes apparent that the finding of gold at Sutter's mill, on the 19th of January, 1848, while it was then and there met with in greater quantity than ever before, and the event led to the most important results, was not really the first time this metal had been found, and the business of collecting it been carried on within the limits of California. It is even pretended that our Government had some inkling of the great mineral wealth of this territory at the time the treaty for its purchase from Mexico was being negotiated, which instrument was ratified on our part only about a month after the discovery of gold at Sutter's mill, and, of course, before any intelligence of that event could have reached Washington. The probabilities, then, are that the United States authorities had no knowledge on the subject other than had been gained from the facts already narrated, and, perhaps, the opinions expressed by those who had been in California, that it bore the appearance of being an auriferous country. That the great placers should not, under the circumstances, have been discovered earlier, seems a little strange. For more than thirty years the hunters and trappers of the various fur companies had pursued their calling along the rivers that make down from the Sierra Nevada; exploring parties, accompanied by scientific attendants, equipped and sent out by the Government for the special purpose of ascertaining and reporting on the mineral and other natural wealth of the regions passed over, had traversed the country in every direction, crossing these same streams in innumerable points; and immigrant trains had slowly journeyed down them, camping time and again on the auriferous bars along their banks, while intelligent foreigners had for years resided in the country, and even published books descriptive of its natural resources, and yet no discovery had been made of these immense gold fields—very little having been ascertained, and less said, except in a casual and haphazard way, of the metalliferous wealth of California. The finding of these stores of ready created wealth, lying almost upon the surface of the ground, was reserved, like many other important discoveries, to be accomplished through the agency of obscure persons and by the merest accident.

Progress of Mining, New Inventions, etc.

During the year 1848 there were at no time more than five or six thousand men at work in the mines of California—throughout the first half of that year not a third of that number. The earnings of the miners were at that period very uneven; some who happened to strike rich spots and the few who employed Indian labor realizing large sums in a short time, while others, who were not so shrewd or fortunate, found it difficult to take out the traditional "ounce," which was even then considered a fair average day's earnings, being the price usually paid for hired labor. The value of all the gold dust extracted that year is estimated at \$10,000,000. During the next two years, the population having meantime largely increased, the product of dust was augmented at the rate of ten million dollars annually, and for the next succeeding three years at the rate of about three millions annually, it having reached its culminating point—\$65,000,000—in 1853. After this the annual yield of gold bullion, being exclusively the product of this State, gradually declined until 1866, when it had fallen to \$28,500,000—thus far the minimum reached, the product of 1867 being estimated at somewhat more; and there is little doubt the yield will henceforth undergo a steady and marked augmentation for several—perhaps for many years to come.

With the increase of gold dust the treasure shipments from the port of San Francisco increased, subsequent to 1849, in a corresponding ratio, though the annual product of the former continued to be in excess of the latter, in sums varying from two to fourteen millions, down to the year 1861, when the treasure exports began to exceed the yield of California proper, the receipts of bullion from Ore-

gon, Washington, British Columbia and other outside localities beginning then to tell on the annual shipments of treasure abroad. From 1861 to the present time the yearly exportation of bullion has undergone a steady increase, advancing from less than forty-one million dollars, the lowest point reached, to nearly forty-two millions, the amount estimated to have been sent away the past year. During the same period the total bullion product of the coast reaching San Francisco has advanced to a yearly sum of about sixty millions, being much greater than indicated by the shipments made; a circumstance arguing a greater retention of capital in the country and increased confidence in investments at home.

As stated, a rapid increase of population took place in California, commencing early in 1849 and continuing for several years, whereby individual earnings were speedily reduced, though the aggregate amount of dust taken out was largely augmented. Miners' wages, which here might fairly be considered the standard of earnings, and which ruled at \$16 a day in 1849, had fallen to less than half that sum in 1852, and to about one-quarter by 1859, at which figure, or a little less, they are still maintained throughout most mining sections of the State. At the present time \$3 in gold, exclusive of board, are the wages paid miners in the more southerly mining districts—\$3 50 in the central, and \$4 in those lying further to the north. At first the only implements used for obtaining the gold consisted of the shovel, pick, pan and rocker, the latter from its greater efficiency coming soon to supersede the use of the pan altogether. With these cheap and simple utensils the miner was for the first few years content, being able therewith to make good wages so long as the diggings were yet unworked and virgin. As the latter became impoverished, however, rendering it necessary for the miner to wash a much larger quantity of dirt, if he meant to keep good the old measure of wages, his ingenuity was tasked to devise new and more efficacious methods of operating. The first fruits of these inventive efforts consisted of the tom and sluice, accompanied with the puddling box, the latter being sometimes used for dissolving the dirt where it was found particularly hard or tenacious. Aided by these and other less noteworthy contrivances the standard of earnings was well maintained for several years longer, and until the river bars and gulches, the shallow flats, river beds, and, in fact, the greater portion of the more superficial and accessible diggings had become pretty well exhausted. At this stage further improvements in the instruments and process used again becoming imperative, the hydraulic mode of washing was introduced, and one which, though expensive and not everywhere practicable, is not likely soon to be superseded by any other. In addition to these, other agents and appliances were from time to time devised, both for facilitating the work of obtaining the auriferous earths from beneath the surface and for breaking down the high bank containing it and preparing it for more speedy washing. To this end pits were opened in the alluvial flats and basins, shafts were sunk and adits driven into the deep-seated gravel beds, and immense magazines of powder, placed in chambers excavated for the purpose, were exploded, shattering to fragments thousands of tons of earth, and thus rendering it easily broken down and washed away with currents of water. Under the demand thus created for additional supplies of this element a new impetus was given to ditch building, inaugurated some years before for taking water from the mountain lakes and streams and conducting it to points where required for washing. Simultaneous with the introduction of these more effective modes of operating, the ancient river channels, previously discovered at a few points, were traced for a long distance, showing them to extend in their ramifications over a broad scope of country, and to contain a vastly greater amount of wealth than had been found in the beds of the more modern streams.

Placer Mines and Operations—River Bed, Gulch, Bar and Beach Mining.

With the introduction of so many economizing agents and labor-saving appliances, and with so many new and broad avenues opening for future operations, placer mining has exhibited in all its departments marked signs of improvement during the past few years, giving ample promise that it will shortly more than regain its former importance and productiveness. This branch of mining is divided into two classes—deep and shallow, often resembling and to some extent running into each other. The latter, as the term denotes, is composed of such auriferous deposits as lie near the surface, generally not more than fifteen or twenty feet deep; the former of such as have been covered up by heavy bodies of alluvium or occupy the deep-seated channels of ancient rivers—the latter varying in depth from twenty to two hundred feet beneath the surface. To the class of shallow diggings belong such as are found on the present river bars and benches—in the beds of modern streams—along dry ravines—in shallow flats, etc. As distinguished from auriferous quartz and other vein mining, placer diggings, especially those carried on near the surface, are frequently termed *stream works*, because worked by means of open pits and washed with streams of water.

River-bed mining is carried on in the beds of such streams as fail to dry up during the summer, and is effected by damming the stream, usually at the head of a rapid, and turning it into a ditch or flume running along its bank, whereby the channel being left dry, the sand and gravel is removed and washed in sluices. Sometimes recourse is had to wing-damming, whereby the same end is partially obtained with much less expense and hazard than by attempts through dams and flumes to drain the entire bed of the river. Both methods are precarious, owing to the frequent occurrence of unexpected freshets; and, having often proved failures, even when spared these disasters, the business has of late years been pretty much abandoned by the whites and left to the Chinamen, who still carry it on quite extensively, being able with their more plodding and painstaking habits to make what to them proves satisfactory wages. This branch of mining was at one time largely engaged in, and though occasionally attended with enormous profits, more generally resulted in entire failure, the causes of which were numerous and unavoidable. Sometimes the miner, after having drained the river at heavy expense, was unable to get to the bed rock where lay the richest dirt, on account of too great seepage; sometimes the dirt when obtained proved too poor to reimburse a tithe of his outlay, while again, perhaps, an unreasonable rain in the mountains would bring down a flood, sweeping

away his works or filling up his claim before he had been able to realize anything from his labors. Moreover, this business, besides being extra hazardous, is, where damming and fluming is resorted to, attended with heavy expense; the lifting of a large river from its bed and conducting it through flumes for a mile or more costing in some cases several hundred thousand dollars.

The principal localities of this species of mining are now the Merced, Yuba, Feather, Scott and Klamath rivers and their tributaries, many sections of these, as well as almost the entire beds of other streams in the State, having been pretty well exhausted through repeated washings continued through a series of years. At all these places, except on the main Feather river, three-fourths of this work is now being done by Chinamen. On the Merced and a few other streams they are the only class engaged in it. The past season has proved moderately favorable for operations of this kind, there having been no disastrous freshets to impede work, and the rivers continuing low until a late period in the autumn. The high stage of water the present winter, however, has compelled a general suspension of the business, it sometimes happening that operations, if not stopped by the first heavy rains, are continued throughout the winter. Generally the large companies, apprehensive of a sudden rise of the river, remove their implements and give up work about the setting in of the wet season, resuming it again as early as practicable the next summer. Many of these claims are so extensive that it requires a number of years to work them out entirely, while others may be exhausted in a single season. Some of the richer and more extensive often yield as high as fifty or sixty, and even one hundred ounces per day—from forty to eighty dollars daily to the hand throughout the working season.

Gulch and River-Bar diggings, at first the principal branches of mining, have now become so far depleted as to count but little in the general estimates made of the business in California. Nevertheless they still give employment to considerable numbers, especially in the more northern counties, where both classes are far from being exhausted. To men of small means they also present a favorite field of mining in other parts of the State, many of this class re-working the river bars year after year, and resorting to the gulches and ravines during the winter, when the rain fall supplies water for washing with success, and when for a short time their earnings are often very fair. As intimated, the most prolific diggings of this kind are situated in the more northern counties of the State—Trinity, Klamath, Siskiyou and Del Norte; the more remote position, rugged surface and rigorous climate of this region, coupled with the long continued Indian hostilities, the greater expense of travel, cost of living, etc., having tended to discourage both capital and population from going into the country. The placers, originally as good as in almost any other part of the State, have been less extensively worked, and, as a consequence, are not impoverished to the same degree as elsewhere. There are yet considerable tracts of ground still virgin, or but partially worked, while the supply of water is much better than in the more southern counties. Besides a greater amount of precipitation, the snow lying on the higher mountains until late in the summer keeps the streams full nearly three-fourths of the year, rendering the period that the miner suffers for want of water comparatively brief. With these advantages this section of the State offers better inducements, perhaps, than any other, for such as desire to engage in placer mining without investing much money in the purchase or opening-up of claims. This new or but partially washed ground is found mostly on flats and ravines lying back from the main streams, though many of the river bars still afford good opportunities for earning fair wages. There still remains a broad scope of placers on the Hay Fork, South Fork and upper tributaries of the Trinity, as well as on the confluents and headwaters of Scott and Salmon rivers. The country here, though extremely mountainous and worth little for agricultural or grazing purposes, is well watered and abounds with the best of timber; the latter an important consideration where lumber may be required for fluming and other objects. There is also enough of arable and grass land, consisting of small alluvial flats, river bottoms and mountain meadows, to supply all local demands for grain, hay, fruits and vegetables; nearly everything of this description being grown here with as little trouble and in as great perfection as in almost any other of the mountain districts of the State. And although the snow falls to a great depth on the mountains, it never accumulates beyond eight or ten inches, and rarely ever lies for more than a few weeks in the valleys—never being seen near the coast, except at a distance. The whole of this region is accounted unusually healthy, the intermittent fevers so common in the more central counties being unknown here. With so many advantages, and so few drawbacks, this section offers better inducements to laboring men than any other part of California, and infinitely better than any of the adjacent States or Territories.

In Bar and Gulch diggings the past year throughout this region has been one of general success. Though operations were somewhat delayed by cold weather, and high water early in the season, the general yield has been above the average for several years past. The localities in which mining was most active and well rewarded were along the main Klamath, Trinity, Scott and Shasta rivers and their tributaries; the most of which, being fed by the drainage of the snowy mountains that cover the whole northwestern corner of the State, were kept at a high stage until the summer was well advanced. With the impoverishment of the auriferous earth, in order to make wages it becomes necessary to wash much larger quantities of dirt than formerly, to which end an additional amount of water is called for. When operations were carried on with the tom and rocker, a very small stream sufficed; but with the introduction of sluice, ground sluice and hydraulic modes of washing a much heavier body becomes indispensable; a circumstance that gives to this region one of its most marked advantages.

Another very effectual method of disposing of dirt is by ground sluicing, which is also here carried on to a large extent, the abundance of water rendering it feasible in numerous localities. Availing themselves of this condition of things, the miners, during the spring when the ravines were running full of water, disposed of an immense amount of dirt in this manner, thereby greatly facilitating summer operations, and adding largely to their aggregate earnings.

While in the northern tier of counties this class of surface diggings has been operated during the past year with more than ordinary success, it has not failed to prove moderately remunerative in other parts of the State. Shasta county, like its more northern neighbors, still presents a good field both for the laborer and the prospector, there being yet many unoccupied spots, where fair wages, with the chance of an additional "strike" can be made. At Muletown, Marion Flat, Pittsburg, Dutch and Barker Hills the great body of miners have the past season been well prospered, nearly

all the claims on Mad Ox and Mule Canyons have yielded an ounce a day to the hand, some of them double that amount—the gold generally being coarse, many of the pieces weighing several ounces. These diggings are said to pay nearly as well now as when they were first discovered, some sixteen years ago. At Janesville many claims have yielded from ten to fifteen dollars per day to the hand, after paying for water and all other expenses. After thorough trial it is found that a considerable stretch of elevated bars on Flat Creek can be worked with profit, if properly managed. At French Gulch many small companies have taken out as high as \$75 daily for weeks in succession. Some good diggings were discovered in the latter part of the summer on a small stream known as First Creek, near Pittsburg. The pay dirt, which is moderately rich, is easily reached, and has yielded to several companies working it a liberal reward.

Coming south from Shasta we enter the more early settled and populous region composed of the northeastern and central mining counties of the State, where this class of placer diggings is much more nearly exhausted than in the section just considered. Yet even here, when we view it as a whole, we find large numbers engaged washing over the old river bars during the dry season, or working in the shallow flats and gulches when the rains afford water. The former are now mostly given up to the Chinese, who, paying little or nothing for water, manage, by carefully washing over the immense heaps of tailings, to make what to them are satisfactory wages. Sometimes these people, by striking rich spots formerly passed over; by working further into the banks than was done by their predecessors; or by finding, as they often do in these old tailings, large nuggets of gold, not only realize working wages, but take out in a short time considerable fortunes. Their reticence, however, on this subject is such that it is no easy matter to estimate with anything like precision their average earnings. That they are larger than is popularly supposed seems probable; their motives to conceal and understate their earnings being, as is well known, very numerous.

Scattered among the hills and mountains throughout this belt of counties are many auriferous spots, to which water cannot be brought by means of ditches, or which, being isolated, are of too limited extent to warrant such expenditure, and are, therefore, worked at such time only as this element may be furnished by the rains and snows. As these supplies are often scant and of short continuance, these spots sometimes last for many years, so little work being done upon them each season. These localities, with the more extensive and, generally, much poorer flats and prairies, afford a field for winter operations to a large class of miners, who, when the water falls, usually return to the river beds and bars, or engage in the service of others on wages. To mention here even a tithe of the localities in this group of counties, where this particular kind of mining is carried on during the wet season would be impracticable, because of their number. A few of the more notable, on account of their extent or richness, may, however, be referred to.

Beginning with Plumas, the most northern of these counties, we find that the early and copious rains of the past fall and the present winter have everywhere filled the streams, and set the miners, who had been waiting for water in the dry ravines, to work sooner than usual. Never, in fact, was the supply over the whole country more abundant and, up to this time, well sustained than it has been the present winter; the rivers, ditches, ravines or reservoirs running full or overflowing, there being in many places an excess of water. Considerable damage has been sustained from this cause through the filling up of claims with mud and gravel and the washing away of sluices and other apparatus. At Mohawk Valley, Plumas county, quite an extent of placer diggings has lately been discovered, and a number of companies are now making good wages there, with the prospect of their ground holding out for a long time. Near Argentine some virgin ground has also been struck that promises well; while excellent prospects have been obtained in the same vicinity, on Squirrel Creek, the gold at all these places being coarse and lying near the surface. At Soda Creek and Cariboo, both in this county, superficial placers are being worked largely and profitably. The washing here is done chiefly with the tom and rocker, small parties working with these implements frequently taking out from thirty to sixty dollars per day.

South of Plumas, and extending all the way down to Kern county, lying at the southern extremity of the gold-bearing belt, surface placers are this season being worked with more than ordinary success, places where specially good wages are realized being numerous. In the vicinity of Gilsonville, Sawpit, Newark, Downieville, and at various other points in Sierra county, are small but lively camps of this kind, whereat the daily earnings vary from ten to twenty dollars to the hand during the working season. As we progress towards the south, these superficial diggings, requiring little preliminary outlay to open them, and easily operated by the miner's unskilled labor, diminish in magnitude and number. In Butte county are found remnants of them in many of the flats and ravines, and on a few of the bars along the Forks of Feather river. In Nevada they occur near Eureka, at an altitude much higher than it was at one time supposed placer mines of value were likely to exist. At Coyoteville surface earth is being worked with good results, while, but a short distance above the Allison Ranch, several acres of ground were discovered last year, which, on trial it is found, will pay remunerative wages. At Colfax, Placer county, a scope of ground, previously but little worked, was not long since opened, and has given satisfactory employment to a number of hands at sluice washing. About Greenwood Valley, on the gravelly prairies, and in the numerous depressions that exist among the lower foothills of Eldorado county, throughout a considerable scope of country around Folsom, Sacramento county, and at several points in Amador, Calaveras and Tuolumne counties, are many surface claims that are now yielding fair average wages. In Mariposa county, where much of the gold has always been found in streaks and pockets, the late copious rains have laid bare many spots heretofore buried up or overlooked, and furnished water in many dry gulches not supplied in ordinary seasons.

Thus we find that this portion of the placer mines, while they contribute but little towards the aggregate gold product of the State, are still a source of considerable revenue, and give profitable employment each succeeding year to large numbers who have not the means to engage in other more expensive and permanent styles of mining.

New Discoveries.

Both in the shallow and deep placers, notwithstanding the rapid exhaustion of the former, are of frequent occurrence in California; the following being among the more important made during the year just closed: On Dog Creek, Shasta county, a number of claims located in the summer, on newly discovered ground, and also others on First Creek, near by, have since opened up well. Similar ground taken up at Galloway's Ranch, and also some gravel deposits found near Milltown, both in Sierra county, are likely to prove of considerable value. The discovery of placers is announced as having been made in Mendocino county, but whether of sufficient richness to warrant their being worked has not

yet been determined. A belt of country, some fifteen miles long and eight or nine wide, extending from Chilli Camp in Calaveras county southwest through Camanche and Frankford down to the edge of the great San Joaquin valley, and which, previously known to contain gold, having been more thoroughly inspected last summer, turned out to be extremely rich in many places; nearly all the ravines, and even the summits and sides of the hills holding a sufficiency of the precious metal to pay well for washing where water is abundant. Encouraged by the prospect of utilizing so broad a scope of diggings, their almost wholly without water, the Mokelumne and Campo Seco Canal Company at once commenced the work of extending their ditch through this region, the completion of which has rendered the latter one of the most active and prosperous districts in the State. At various points throughout the counties extending south from Calaveras to Kern placer diggings, in some instances quite rich, but of no great extent, have been discovered during the past year. On Lytle creek, San Bernardino county, a great breadth of gold-bearing earth has been met with, much of which, if water were brought upon it in sufficient quantity for ground sluicing, might be made largely tributary to the industry at that section. With the present limited facilities the claims here are paying day wages, varying from five to fifteen dollars. A ditch has been projected for bringing water to the diggings. In Holcomb and El Tehachita valleys, in this county, a limited extent of fairly paying placer mines exists. At a point seventeen miles above Fort Yuma, in San Diego county, a company of miners attempted to sink a shaft, more than a year ago, with a view to reaching a rich deposit of gold dust supposed to exist at that place. Owing to the rapid accumulation of water in their shaft they were obliged to procure a steam engine for pumping it out. The machine obtained, however, proving insufficient for the purpose, the company were finally obliged to abandon their claim without realizing anything for their labor and outlay, or being able to fully assure themselves of its actual value. Not only do new and important discoveries continue to be made every year in this department of placer mining, but those instances of rare success, commonly denominated

Big Strikes.

Which so dazzled the popular imagination in the early days, still occur, though doubtless of less magnitude and at longer intervals than formerly. Scarcely a day passes without incidents of this kind being recorded by the local press in some part of the mining districts; while it must be remembered that many of these cases happen without gaining publicity, there being valid reasons why certain classes should seek to conceal them. Selecting at random a few pertinent cases of this kind from the many that might be mentioned, we find that three lumps of nearly pure gold were picked up at You Bet, in August last, the united weight of which was \$39,000, valued at ten thousand dollars. In February a nugget of pure gold weighing nearly four pounds, was found in Mariposa county; chips varying from ten to twenty ounces being common in that section. In May, parties ground sluicing on French Ravine, Plumas county, washed out a slug weighing fifty-seven ounces, worth about \$1,000. A Frenchman who had sold his claim in Last Chance, Butte county, with the privilege of working it a day or two longer took out during this time a fifty ounce nugget, also worth nearly \$1,000. A gang of Chinamen working in the vicinity of Kanaka Flat, took out in the month of July, a piece of gold weighing forty-five pounds, worth over \$15,000. The strike was concealed until after the parties making it had taken their departure for China. The week following another company of these people picked up near the same place a chip weighing forty-one pounds. In September, a thousand dollar lump was washed out on Dog Creek, Shasta county, and about the same time, a Mexican, working at Hornitos, Mariposa county, struck a pocket from which he extracted over \$3,000 in the course of a few hours. In the same county a Chinaman scraping over some old diggings, found a nugget worth five hundred dollars. In November, a man named Rohards, who had long been mining with but indifferent success, came upon a fissure while working in Placer county, from which he took out over \$3,000 coarse dust in three days. In the same month, a thirty ounce piece was picked up at Colorado, Mariposa county; all of which, without further multiplying examples, serves to show that these lucky strikes, though exceptional, are sufficiently common to keep the miner's hopes in a state of tension, and thus sustain him, as often happens, through years of deprivation and fruitless endeavor; for it must not be forgotten that, while the number of these cases of marked success seems so very considerable, they go but a small way towards establishing a high average of earnings for the great body of miners.

Passing from these limited and comparatively speaking, nearly exhausted surface deposits, we come next to consider

The Deep Placers.

Which, occupying the channels of ancient rivers, now present the most prolific and extensive field for pursuing this branch of mining to be found in California. This system of former rivers extends over a large portion of the central and northeastern mining counties, having been distinctly traced from Tuolumne to Plumas, the main channel ramifying into several branches, as it is followed towards the north. The body of auriferous gravel, in some places so indurated as to be termed cement, varies in thickness from a few feet to several hundred, and in width from two hundred to a thousand or more, attaining its greatest breadth at points where these streams appear once to have widened out into lake-like expansions. As a general thing, where richest they do not average more than thirty or forty feet in width, and six or eight in depth or thickness. In some spots they are fully exposed, having been cut by the corrodent action of the streams that now cross them nearly at right angles, while at others they are buried over two hundred feet beneath the surface. The gold in these channels was collected at the time that large streams were coursing through them, by the same agencies, no doubt, that are operating to enrich the beds of modern rivers. Afterwards these channels were filled up by a flow of lava, portions of which having hardened into basalt, produced the columnar table mountains seen standing over sections of these old rivers at the present day; the greater portion of these basaltic formations having been disintegrated by the action of the elements, and scattered over the adjacent country. It is now over thirteen years since the work of exploring these channels first commenced, every year furnishing additional evidence of their extent and richness. As frequently happens in discoveries of this kind, the first knowledge gained of them was through accident, or was at least gained while the discoverers were in pursuit of another object. From small beginnings entered upon by a couple of miners, this department of mining has spread far and wide, until, without having yet reached its limit, it occupies a most prominent place in placer operations. Commencing in Tuolumne county and traveling north into Plumas, we find at intervals, and in some places for consecutive miles, throughout this entire belt of country, the work of developing these ancient river beds going on. Until we arrive as far north as Placer, operations are being conducted on a comparatively limited scale; but at Forest Hill, in

this county, they suddenly expand into magnificent proportions, this being the site of many of the most valuable claims yet opened along the line of this subterranean gold field. The work of exploiting these

Ancient River Beds.

Is effected mainly through shafts, open cuts and bed rock tunnels, the construction of which, in many cases, requires several years, and involves the expenditure of large sums of money—not a few of the latter having cost fifty to two hundred thousand dollars. As it becomes necessary, in order to the removal of the entire mass of this cement and gravel, that these tunnels be run on a level exactly striking the lowest point of their containing basin, with sufficient fall for drainage, the exercise of much engineering skill is requisite to their proper location. Generally these tunnels are of large dimensions—eight or nine feet high and from six to ten feet wide—being intended for the accommodation of a double tramway or railroad track, by which two sets of cars can be run out and in at the same time. In some instances the shafts sunk are vertical and in others inclined, drifts or tunnels being run from the bottom. Open cuts are resorted to only where the superincumbent mass is of no great thickness. In removing this gravel it is customary to divide it up into sections by means of drifts, after which it is breasted out according to the manner usually adopted in coal mines. If sufficiently soft and loose to readily release the gold by the action of water it is washed in sluices; when too hard and adhesive for this purpose, it is treated like vein ore, being crushed with stamps in what are known as "cement" mills, many of which have lately been erected for the treatment of this material. The gold yield of this gravel is sometimes enormous, thousands of dollars' worth often being extracted from a few cubic yards. So very rich has it been found in certain localities that each individual was restricted by the mining laws of the place from holding more than an area fourtenth of a square, from which limited space very handsome fortunes were frequently taken out.

Taking a few cases of average and of extreme success with others of total or partial failure, in this branch of mining, as we find them reported during the past year, they run something as follows: The Hildreth claim, at You Bet, Nevada county, working eighteen hands, netted the owner over one thousand dollars weekly—the entire amount of capital invested in erecting mill, opening claim, etc., being \$25,000. From the contiguous ground of Noree & West, \$50,000 was taken out in ninety days, after which the yield ran down quite low, while the cement of two other companies near by for a time at least, barely paid for working. The Union claim at Howland Flat, Sierra county, employing seventy-five men, took out, during the summer, four hundred car loads of dirt daily, which paid at the rate of one dollar to the load, the cost of removing and washing being sixty cents. The stratum of gravel here varies in thickness from two and a half to seven feet, and is reached through a tunnel three thousand feet long run from the bottom of a three hundred and sixty foot incline. The opening of this ground has been expensive, but the large mass of pay dirt will insure profitable working for a long time to come. A claim opened in July at Douglas Flat, Calaveras county, on the so-called "Blue Lead," being supposed to occupy one of these ancient river channels, yielded at the rate of twenty-five cents to the pan; while, as the pay earth seemed abundant, also pointed to profitable workings in the future. In the same month and county, a streak of gravel was reached in ground being opened at Chilli Gulch, some of which paid over fifty cents to the pan. At Dutch Flat, Placer county, Williams & Mallory struck the "Blue Lead," in the month of July, and with six days thereafter, took out \$13,000. Nearly all the claims thoroughly developed and judiciously worked at Forest Hill, in the same county, have been steadily yielding large revenues to the owners throughout the year; while others near by, equally well managed, have failed to pay current expenses, or, at most, ordinary wages. The causes of these failures, however, are apt to proceed from mistakes made in locating the exploratory works, or estimates of cost, or similar errors, rather than from the actual poverty of the mines themselves.

Differing in volume, geognostic position, and modes of occurrence from these rich gravel ranges, are the extensive beds of alluvium and drift that supply over so large an area of the mining region the material for

Hydraulic Washing.

A mode introduced about fourteen years ago, and by which the weight and momentum of the water, acting under a high head, is made to do the work of propelling and washing the auriferous earth, and of carrying away the tailings at one and the same time. The apparatus at first employed for conducting and discharging the water, a simple hose and nozzle of small dimensions, has since been modified and enlarged that but little of the original can be recognized in the appliances now in use, though the principle remains the same. As stated, the material chiefly operated upon by this style of washing, consists of immense masses of mixed alluvium, gravel and drift, forming in some places high banks, extended flats or rounded hills, the product of dynamic movements, glacial and volcanic action, and other disturbing causes operating long prior to the formation of the present river system. In some localities the auriferous masses are spread over thousands of acres, and have a thickness varying from a few feet to two hundred and fifty or more; their average thickness being at least one hundred and twenty feet. They everywhere rest on a stony basis, designated the "bed rock," and are in many places capped by a heavy stratum of volcanic matter, which, at one time, no doubt, covered them entirely. Where this capping has been worn away, exposing them to the action of the elements, these gravel deposits, through disintegration, have been broken down and scattered, thereby materially diminishing their former thickness, which is much greater where this protection still remains than elsewhere. Scattered through all parts of these gravel beds are particles of gold, though they generally increase in richness as the "bed rock" is approached. Owing to this fact, as well as the necessity that exists for getting rid of the upper and poorer portions, it is usual in practice to wash the entire bulk away. In many cases the "bed rock" underlying these accumulations of gravel being basin-shaped, it becomes necessary to cut a channel—usually denominated a bed rock tunnel—through its rim, to drain off the water, which otherwise would prevent the miner securing the richest stratum of dirt, generally lying, as already observed, near the bottom. This tunnel does not aim to strike, as in the case of the ancient river channels, the exact bottom of the auriferous gravel, but is generally run on a level from fifty to a hundred feet below it, a shaft being afterwards made to connect the tunnel with the gravel above. Through this shaft all the rocks and dirt, together with the water used in washing, is made to pass, the whole by the momentum gained in its descent tending greatly to grind up the earth and set free the gold. Along this tunnel are laid the sluices, two usually being put down, that one may still be used while the other is being cleaned up. In many claims no "bed rock" tunnel is required, there being no basin to drain, or rocky rim to cut through. In these cases the sluices are set and the entire operations conducted above ground.

In some instances, where these gravel banks are found, as often happens late in the summer, to be particularly hard and dry, or are composed of more obdurate material than ordinary, blasting with gunpowder is resorted to as a means of facilitating its being broken down with the pick and preparing it for the more ready action of water. To this end a drift is run into the bank, at a low point, for a hundred feet or more. At the extremity of this, chambers are excavated on each side, into which the powder, amounting often to 200 kegs or more, is placed and by means of a fuse exploded, resulting in the shattering of many hundred tons of earth, which can then be piled down and run off without much trouble. Without attempting to enumerate the various localities where this method of washing is employed, or to convey an adequate idea of its importance, it may be stated that it is everywhere in use along the entire gold belt, being most common in the counties lying between El Dorado and Plumas; and that millions of cubic yards of earth are now annually washed with profit, that would otherwise, most likely, have remained untouched. To say that it has been the means of adding every year since it became largely employed, twenty per cent. to the hullion product of the State, would hardly be placing its claims as an efficient auxiliary in too strong a light.

Beginning on the south, the farthest point in that direction where this mode of washing has been resorted to is Tehachapi valley, Kern county, where it is used to advantage so long as a sufficiency of water can be had. From this point north to Forest Hill, Placer county, it is employed at many points with the usual good results. As the deposits at this place consist mostly of cement, requiring mills for crushing it, the hydraulic washings are not extensive immediately about the town, though there are many conducted in the vicinity, each employing a small force and cleaning up, after a ten days' run, from one to two thousand dollars, over half of which are profits. At Little York, You Bet, and other points in Nevada county, companies employing more hands—generally from twenty to forty, and working double shifts, clean up from one to three hundred dollars daily above current expenses. At Gold Run there are forty or fifty rich paying claims, when water is plenty. The depth of earth washed here varies from 130 to 175 feet, beneath which is a conglomerate impregnated with gold, but so hard that it will require to be worked with stamps in order to get out the metal. Each claim works eight or ten men, at \$3 per day; consumes from 300 to 400 inches of water, and, when running, takes out about \$5,000 every fifteen days, a few of them at times doing considerably better. Of several companies working at Hildreth Hill, Nevada county, the Independent has such an extent of ground that it would require a century to exhaust it, working off a hundred feet of its face every day. The Eagle, near by, employ twelve men, use 400 inches of water, and three pipes, under a pressure of 225 feet. The North Star, employing the same number of men, and using 360 inches of water, make free use of powder for breaking out their ground. These, with three or four other smaller companies at this place, employing in the aggregate about eighty hands, perform with this force, and the aid of powder, more work than two thousand men could accomplish without this assistance and the use of the hydraulic hose. At Oro Fino, Siskiyou county, the hydraulic companies sluice off immense masses of top dirt in the winter, when water is plenty, rendering the task of finishing up much easier, when, later in the season, the supply is reduced. The same thing is practiced in other places where the winter affords a superabundance of water.

The foregoing cases are mentioned, not as furnishing examples of eminent success in hydraulic washing, but as indicating pretty nearly the average results of these operations. Much heavier yields with proportionably larger net earnings are obtained by many other hydraulic companies in the State. The celebrated Blue Gravel claim, and others, in the vicinity of Snareville, for example, divide enormous profits, the former being considered one of the most largely productive and profitable mining properties in the State. Occasionally undertakings in this class of mines prove entire failures, the gravel turning out to be of less quantity, poorer or more difficult to work, than was expected. Numerous cases might be cited of this kind, though it must be conceded that, taken as a whole, hydraulic mining has thus far proved one of the most lucrative and certain branches of the business. Besides the foregoing, which embrace the principal branches of placer mining, and the modes of operating therein, there are certain other subordinate classes, each worked by methods and apparatus peculiar to itself. Thus we have a description of placers denominated

Beach Mines.

The locality of which is on the ocean beach in the northwestern corner of California and in the southwestern part of Oregon. Commencing near Trinidad Bay, they are found extending along the coast at intervals of from five to thirty miles, over a longitudinal space of nearly 150 miles. The stretch of auriferous beach at Trinidad, a little over one mile long, is owned and worked with success by Dr. John A. Veatch. The next beach, twelve miles north, is owned by one Jans, who for several years has worked it with good results. It is about four miles in length and is called the Lower Bluff, being a few miles below or south of the original Gold Bluff, the discovery of which in the spring of 1851 first turned public attention to the subject of these gold bluffs and beaches, it having at the time given rise to much excitement, and led to no little speculation. The upper beach, at the foot of the original Gold Bluff, is now owned and worked by General Wilson and associates, this gentleman having been one of the first to engage in the business. They claim several miles of beach and have taken out a great deal of money. North of this point, for more than a hundred miles, patches of auriferous beach occur at intervals, the whole of which are claimed and to some extent worked, though neither here nor elsewhere along the coast do any of these beaches yield a tithe of what they might be made to produce, owing to the extraordinary manner in which the most of them are monopolized. In length they vary from two to twelve miles, and yet the longest of them are sometimes held by a single company, or by two or three companies at most, who give employment to perhaps a couple of hundred men, the most of them on wages, whereas with what might be considered a reasonable distribution of these properties thousands of men might be profitably engaged.

Position and Formation of the Gold Bluffs and Beaches.

Wherever there is a gold bluff along this portion of the northern coast, there is an auriferous beach adjacent to it, the latter being formed through the washing away of the former by the action of the waves. These bluffs are high, sandy ridges running out into the sea, and are thought to have been originally formed by the same agent that is now wearing them away. The gold they contain was, no doubt, in the first place washed down by the Klamath, Rogue, and other auriferous streams that discharge into the ocean along this part of the coast; it having afterward, together with the sand, shingle and other material of which these ridges are composed, been thrown up by some convulsion of nature, or possibly by certain currents in the sea, which do not now

exist. Imbedded in these bluffs are large trees, ferns and other plants of the same species now found growing to the country adjacent, indicating that they were formed in part from the flood wood and other matter that had drifted from the land, and, in all probability, at no very remote period in the past. In some spots the material of which these ridges are composed has hardened into sandstone, though in most places they are of a loose, granular structure, easily affected by the action of the surf, which, sometimes breaking upon them with great force, readily explains how they come to be worn away and carried out to sea, the currents that here at regular seasons set up and down the coast, tending to scatter them widely on either hand. That the gold contained in the beach sand is derived directly from the bluffs is apparent, not only from the similarity between the dust in both cases, but from the further fact that the sea-shore between these beaches is barren of gold.

Modes of Prospecting, Gathering and Washing the Auriferous Sand.

The best time for prospecting and collecting the auriferous sand is at low tide, immediately after a gale or heavy storm, when the surf is apt to bring up new deposits and throw them high up on the beach. At such times it is customary for the foreman of the company to ride along the shore and ascertain where the richest places are; which being done, he at once hurries his whole force to the spot and secures as much as possible before the rising of the tide puts a stop to their labors. Though it requires a practical eye to readily pick out the most eligible spots for operating, anyone—even the most inexperienced—can, as a general thing, detect the glittering sand reposing in the edge of the black sand, as he rides along the beach. Where the gold is not thus apparent, the sand can be very readily and quite efficiently prospected by picking up a handful of it when wet, and, dropping it, observing how many small particles of dust adhere to the hand. When a favorable spot is found, the working force, consisting of from ten to twenty hands, is turned out, even if it be in the middle of the night, and every exertion is made to collect as much as possible; since, not only are their labors apt to be cut short by the incoming tide, but so feeble are these deposits that they may disappear, perhaps, before the next day, being swept away by another storm, or even carried by the tide itself beyond the miner's reach. The sand when collected is packed on animals beyond the reach of high water, and there deposited, to be afterwards carried to a suitable place for washing, sometimes a distance of several miles, if there are no streams affording sufficient water for the purpose nearer at hand. The washing is mostly done by sluices and is easily effected, as the particles of gold lie loose in the sand. In some cases it is performed at the time of collecting it, while in others this operation is deferred till summer, when, there being fewer storms to throw up the golden sand, there is less done in the way of gathering it; leaving more leisure for washing, and at which season, also, the working force of the companies is generally put to cultivating the land. In some instances five or six hundred tons of sand is thus accumulated and reserved for subsequent washing. The earnings of these companies, as well as of individual owners—a single person sometimes holding miles of the beach—are, as a general thing, quite large; the daily yield of the washings varying from \$50 to \$200 to the hand—the wages paid employees being from \$8 to \$15 per day and keep. That with such revenues these are valuable properties may be inferred when it is recollected that these deposits are inexhaustible, those worked the longest—over sixteen years—showing no appreciable impoverishment.

Tail Washings.

Consist of washing over, as is often done many times, the earth, sand, gravel, and other refuse matter left from former washings, which frequently accumulates in immense quantities, often so great as to interfere seriously with the labors of the miner, and cover up valuable ground, preventing its being worked altogether. Occasionally large portions of these tailings will be carried away by a flood, thus relieving the miner from their interference, and otherwise proving beneficial, since their removal often exposes valuable ground which otherwise could not have been reached except at considerable expense. In many cases this class of operations is found to pay well; these tailings, after laying for a year or two exposed to the action of the elements, becoming slightly decomposed, and thus releasing the gold from the clay and other tenacious substances in which it was imbedded. Coarse pieces of gold are also frequently picked up that have escaped former washings with the tailings. This business, though mostly carried on by Chinamen, is in many places still retained in the hands of the whites, who sometimes engage in it very extensively.

Ground Sluicing.

Is a process by which, when there is a large mass of top earth too poor to justify washing it, is disposed of by means of a strong current of water, which carries it away leaving the lower and richer stratum of earth to be afterwards passed through the sluice, which, in its reduced form, is readily done. This latter branch of the business is often left to be performed in the summer, when the miner has more leisure and water is less plentiful. The past two years, owing to the abundant supply of water, having been extremely favorable for ground sluicing, it has been extensively employed, and in many places to very good purpose. The Bush Creek diggings, in Nevada county, located in 1851, over one mile in length, are worked entirely by ground sluicing, and are said to have yielded to the parties who have owned them, at various times since, over three million dollars. Other claims in the same vicinity have also been worked for a long period and yielded largely. At Nelson Point and Argentine, Plumas county, this mode of washing has also been extensively practiced, and with variable results; some claims having failed to pay expenses, while others have realized moderate returns, and quite a good many enriched the owners. Among the medium class claims here, the daily yield ranges from six to ten dollars to the hand; that of the more prolific from twenty to thirty dollars. In Siskiyou, and other of the more northern counties, ground sluicing, owing to more copious supplies of water, is in greater use than elsewhere. The present winter having been more favorable than usual for operations of this kind, not only on account of the heavy rains, but also the mildness of the weather preventing the freezing of the water, a large amount of this preliminary labor will be performed, greatly facilitating the work of washing up next summer.

Quartz Mining in California.

This branch of mining, if not altogether prosperous and flourishing in every locality, is undoubtedly in a generally healthy and progressive condition throughout the State. Beginning on the south, we find the several mills erected in San Bernardino county, some of them quite recently, are mostly doing moderately well, though the same difficulties have been encountered here as elsewhere in the treatment of the sulphureted ores. There are now four quartz mills in this county, carrying 20 stamps, besides a large-sized Howell crusher, the whole erected at a cost of about \$10,000. In addition to these, there are a number of arrastras in operation. In San Jacinto valley, San Diego county, fifty miles southeast of San Bernardino, quartz lodes of favorable appearance are reported to have been found lately, though as yet not much is known as to their actual value, no work having been done upon them. (The review of the Coal, Copper, Borax, Petroleum and Quicksilver operations will appear next week.)

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Dec. 21st: Work is carried on steadily upon the I. X. L. lode, and although the No. 1 ore, for which the company gets \$100 per ton at the dump, is not found in sufficient quantities to furnish even a small mill, yet they get some all the time; and of the second quality ore they find satisfactory quantities.

Work will be commenced on the Diamond lode next week. A shaft will be sunk and the mine thoroughly tested. The point selected for the shaft is beside the large croppings near the west wall of the lode, and the ledge matter close to the surface shows unmistakable signs of ore-bearing. The recent downward movement in the Tarshish, showing, as it does, that depth gives increased richness, leads parties who have claims upon either extension, to a knowledge of the proper way of opening them.

The workmen in the Tarshish mine yesterday brought in a lot of ore better than ever before found in the mine. The whole face is now looking finely, and so much ore has been run out during the week that the dump is entirely filled, and the superintendent goes out to-morrow to make arrangements for storage of the pay ore.

Mr. Graff, of the Tarshish mine, who is working the ores in person at Davidson's mill, has accumulated a huge pile of hullion, crude hullion and amalgam, and will probably finish the lot of ore now at the mill the coming week.

Amador County.

Ledger, Jan. 4th: A portion of the machinery of the Butte Basin Co. broke down last week, causing a suspension of operations for two or three weeks, as the repairs have to be made in Stockton.

Mr. Jno. Agrell, superintendent of the chlorination works of Messrs. Coney & Bigelow, has finished the working of a lot of sulphurets taken from the Keystone mine at Amador City, and the yield far exceeds the most sanguine expectations of the owners of that mine. The quantity of sulphurets worked was 16 tons, which produced 231 ozs. of gold—fineness, 971; value, \$4,639; average per ton, \$289.94.

Calaveras County.

San Andreas Register, Jan. 4: Late reports from Washington district have thrown the mining community into a terrible state of excitement. On last Monday we learned that the discoveries in that district were astonishing every one who had any knowledge of quartz mining in the vicinity, and that the extent of the rich quartz ledge region was marvelous. We also learned, from the most reliable source, that the Washington claim had just realized from 13 tons of rock, crushed from their quartz lode, the sum of \$900. A. T. Smith & Co. have a lead of the most wonderful richness—experienced and reliable miners declaring that the rock taken from their vein will average not less than \$500 per ton. Other claims in the same vicinity are reported very rich. An immense number of claims have been recently located, and, in spite of "wind and weather," the lucky locators are prospecting with a cheerful and hopeful industry, truly Californian. Capt. Ferguson has stopped work upon his claim, for the reason that he had made no preparations for residing at the mine during the winter. He was in our *sanctum* on Tuesday, and assured us that almost any of the veins upon which work of any importance had been done would pay \$70 to \$80 per ton.

A letter just received from Judge Coulter fully corroborates the above, excepting that the 13 tons worked by the "Washington" yielded only \$882. He concludes his letter thus: "New discoveries are being made daily. One thing I feel sure of, we have got it."

We are also reliably informed that some rich quartz rock has been discovered in the immediate vicinity of our town. Our miners appear more confident and cheerful than they have for years.

In speaking of the excitement the editor says: "Only about six months ago some quartz prospectors found their lead by washing the surface up to it, and several men set to and washed the ground on the lower side of the lead, where good quartz was found. The whole of the ground they washed paid good wages. The same lead has been traced for miles, yet not a particle of surface mining has been done by the side of it."

The *Mountain News* says that in the new mines at Frankfurt and vicinity there are from 50 to 75 companies at work, and that the mines are yielding from \$2.50 to \$10

per day to the man, clear of water. Notwithstanding the rainy weather, miners continue to flock to the new diggings, and are locating on claims and preparing them for work as fast as they arrive.

Mariposa County.

Mail, Dec. 28th: The late storm wrought more damage throughout the country than will probably ever be known in detail. We are informed that at Hite's Cove, Mr. Hite's mill, anstras, houses, suspension bridge, and everything, were swept away. We have heard Mr. Hite's loss, including a large amount of rich tailings, estimated at from \$50,000 to \$75,000.

Nevada County.

Transcript, Jan. 1st: The South Yuba Canal Co's ditch was badly damaged by the late storm. Also, the Bear Valley Ditch. Over 30 boxes were destroyed in Merrow's district. The Dutch Flat Ditch was broken in seven places and filled with slides, one of which is 500 ft. across. This part of the ditch will require 45 boxes to repair it. The damage is estimated at double the amount resulting from the floods of 1862. It is thought that it will require 40,000 ft. of lumber, at least, to repair the ditches, and a large force will have to be employed.

Jan. 3d: The claims of Ashburn & Co., on Scott's Flat, sustained more damage during the storm of last week than our item stated. We learn that all their iron pipe, several hundred feet, was so badly damaged by a heavy cave as to render it worthless. A large log, about 50 ft. long, was carried down by the immense quantity of earth into the flume, and in its course made a complete wreck of it. The distributor lies buried beneath many feet of dirt, stumps, roots, pipe clay, etc., and the framework was found lying on the bank of Deer Creek, about a mile below. It will take a month or two to repair damages.

Gazette, Jan. 4th: The heavy and almost uninterrupted rains of the past two weeks have almost put a period to all placer mining operations for the time being. Miners in most places have been busy in securing their claims against damage by floods or caving of the ground, and anticipate a golden harvest from an abundance of water next summer. The quartz mines have sustained very little damage by the storms, and operations generally have been but little interrupted. We have not heard of a single mine being flooded, though in two or three the workmen have been driven from the lower drifts by the rush of water, but the work in every case was continued in the levels above.

The Black & Young mill, near Eureka, has been constantly employed for the last three months in crushing rock from their mine. The heavy storms of snow and rain have not impeded operations to any extent. They have 20 men at work steadily in their mill and mine. Their rock pays handsomely, but the precise figures that the clean-ups show we are not at liberty to state. As they have an abundance of wood on hand at the mill, and plenty of paying rock in their mine, which is easily taken out, they expect to be able to keep their stamps going all through the winter, regardless of rain or snow. The mill averages over 20 tons of rock per day.

The North Star Co., at Grass Valley, have declared a dividend of \$10,000 to the shareholders.

The Grass Valley *National* says that the specimen hunters were early on the ground after the rain, and we hear of two of them being in luck. Gus. Upton picked up a piece of float quartz on Pike Flat, with from \$60 to \$70 worth of gold imbedded in it, and another hunter found a piece of quartz apparently filled with fine gold.

Grass Valley *Union*, Jan. 4th: Mr. C. W. Scott recently exhibited to us some of the rock taken out of the tunnel now being run in the Scandinavian mine. The rock is literally specked with fine gold, besides containing rich sulphurets. The ledge is now about three feet thick, and the new tunnel opens up an immense lot of ground. Early in the spring the company intend erecting a 10-stamp mill, negotiations for which are now going on.

Plumas County.

Quincy Union, Dec. 21st: Mr. Carr has found coarse gold in his claims on Mill Creek, between Rich Bar and Fales' Hill. Some of the pieces weigh as high as an ounce.

Shasta County.

Courier, Dec. 21st: When Jollia & Dosh were running their mill at Miletown, last fall, a number of persons affirmed that they lost the greater portion of the gold under the battery. The rock failing to pay, they concluded to tear up the battery and see how much gold had escaped. On making a thorough clean up, they found \$8, which satisfied them that their gold had escaped in some other manner.

Reports from South Fork are to the effect that nothing is going on there at present, and but little prospect of business improving for some time to come. Nearly everybody has left the mines, and the few who remain have gone into winter quarters, with the intention of waiting until spring for something advantageous to turn up.

Sierra County.

Downieville Messenger, Dec. 28th: The following is a list of the mining casualties in this county, caused by the late storm, so far as heard from. Several hundred feet of Clement's large flume, used for floating logs to the mill, have been carried away, together with some of the flumes of Rhodes & Larrien. The diggings of the last named parties were also filled with water. On the North and Middle Forks the result has been the same. Five hundred feet of the Good-year Bar flume was washed away together with the flume bridge across the river below Snake Bar; only one pier was left. Craig's bridge and all his fluming were also demolished and his diggings filled up. At the second rise of the Yuba, two or three hundred additional feet of Clement's flume was also washed away. The bridge which carried the Montpelier flume across the North Fork, was swept away by the recent high water. What the amount of damage is we do not know.

Jan. 4th: A person at Rock Creek recently went down the stream to prospect a bank of gravel which he had discovered. In digging a hole to collect some water for prospecting, he struck a deposit of gravel, and in the first pan he took out a specimen worth \$60. The discovery created considerable excitement, and claims were rapidly staked out in that vicinity.

During the storm, the flumes of the Reis mill were blown down and the ditches broken.

The St. Louis correspondent writes: The damage to ditches and flumes in this vicinity is very great. At Howland Flat the Union Co's timber shed was blown down, inflicting damage to the amount of \$500. The water rose in the incline of the Union Co., so that all work was stopped for several days.

At Grass Flat the track of the Pioneer Co. was broken by fallen trees, and afterwards washed away. The damage was more than counterbalanced by the washing away of several years accumulation of bedrock.

The Greenwood Co. at Greenwood, near St. Louis, had their incline filled with water, so that it ran out of the main tunnel.

Yuba County.

Marysville Appeal, Jan. 3d: The Pactolas Gold Mining and Water Co. of Smartsville, filed their Certificate of Incorporation in the office of the County Clerk yesterday. The object of the company is to carry on the business of mining on the extensive mining claims of James O'Brien near Smartsville, and the introduction of a further supply of water for the mines of Smartsville, Timbuctoo and vicinity.

We learn that the Jefferson mine at Brown's Valley suffered a little damage by water in the shaft. We also learn that the mine was cleared yesterday, when it commenced to crush its own quartz again.

ALASKA.

The American steamship *Constantine*, from Sitka, Dec. 28th, brings the following: Reports daily reach New Archangel of a gold discovery on the mainland, and the men employed in the Quartermaster's Department have given notice of an intention to quit the service in the spring and go to gold hunting.

COLORADO.

Central City Register, Dec. 17th: Some 60 or 70 tons of ore from the Baker mine have been in Martine's mill several weeks, and about 20 tons were worked recently, the bullion containing so much copper, that it required to be refined, time for which has not yet been found. Martine says it works easily and closely, and yields about \$75 per ton. The Baker mill building is completed, the engines and boilers set, foundations for three cylinders laid, the cylinders put together and wheeled. Woodhury & Co. are making the amalgamators.

The material in the drift on the Illinois lode grows better, paying now \$13 or \$14 per ton. The yellow quartz of the Malabar lode, Peru district, produced \$68 per ton, and 70 per cent of lead, two different runs at the Georgetown Smelting Works. The Silver Eagle produced at the rate of \$219.04 per ton, two tons treated at Garrett, Martine & Co's. The Hartwell lode on same creek, produced at the rate of \$240 per ton at Stowell & Litchfield's experimental works, Georgetown.

S. H. Wright, a practical millman of Black Hawk, has leased of the Loker Co. their 8-stamp mill in Chase Gulch.

Capt. Jno. Slawson recently got 95 ozs. of silver from 1,800 lbs. of top quartz ore from the Potosi lode, San Juan.

Denver News, Dec. 18th: We were shown this morning at the First National Bank, two small bars, one weighing 8.96 ozs., fineness, 858½; the other 5.60 ozs., fineness 85½. Also, a quantity of dust and nuggets taken from the California and Tarryall Gulches. Total value of dust and bars, \$2,400.

We were yesterday shown at the branch mint, four bars of hullion, weighing in the aggregate 112 ozs., and valued at about \$2,266. We did not learn the locality from which the gold was taken.

We were shown this morning an assay certificate, belonging to Dr. J. E. Wharton, of an assay made on silver ore taken from the Henry Clay lode, Griffith district, which yielded 715.05 ounces per ton, valued at \$973.26.

We were shown several retorts of gold this morning, at the Colorado National Bank, which had just been received from Central, valued at \$1,300. Also, 8.17 ozs. gold dust from the Arkansas river, of exceeding fine quality.

The *Times* says: We saw a handsome gold bar from one of our Black Hawk companies, at the Rocky Mountain Bank, yesterday. It weighs 300 ozs., and is worth over \$6,000.

IDAHO.

Lewiston Journal, Dec. 12th: The additional ditch to the William & Maxwell mill, in Warren's diggings, is completed. They produced lately over \$1,000 from 4½ tons of rock imperfectly crushed. The Hie Jacket mill will be ready to run by the first of January.

Owyhee Avalanche, Dec. 28th: Wells, Fargo & Co. shipped bullion from this place to San Francisco during the month of December, to the amount of \$105,000, being the product of Owyhee during that time.

Humboldt Register, Dec. 28th: All accounts from the upper country report flush times at Silver City and Ruby City. It is said the prospects have never been better since the opening of the mines. Large quantities of bullion are being taken out, some mines yielding fabulously.

MONTANA.

Herald, Dec. 12th: The company of miners who are engaged in prospecting Gravelly Range, by running a tunnel into the hill, are now working three shifts, of eight hours each. They are now in 200 ft., and the granite bedrock is pitching at an angle of 50 degrees.

Tenderfoot Gulch is played out, and the miners have all left there. Several drain ditches were dug, in order to test the ground but the prospects obtained were not sufficient to justify the building of winter quarters.

In Lost Horse Gulch, a company of men propose, during the winter, to run a tunnel into the bar. They think that there is a rich channel somewhere at one side of the main gulch.

The miners at Prickly Pear Cañon are yet hauling dirt from Peck's Gulch, and are doing well.

Piegan Gulch is getting richer the further up it is worked. The company that own the bedrock flume expect to take out a large amount of gold next season.

A company of men have under contemplation the project of fluming Prickly Pear Creek, somewhere near the cañon, and mining the channel.

About 500 miners will winter at Crow Creek.

Post, 21st: The result of the last clean up at Hendrie's mill for the I. X. L. Co. given last week, should have read 287 ozs.

Turnley's mill cleaned up on last Tuesday, 190 ozs. The rock was from the Park lode.

NEW MEXICO.

Denver News, Dec. 18th: There is a great rush just now to the new diggings at Cimarron, New Mexico. Londoner & Bro., grocers, report that they yesterday outfitted 75 men, who were on their way to the new mines. They report that there are hundreds more on the road.

Hon. E. N. Stearns has shown us a private letter from the Cimarron mines, which asserts the existence of gold there. One Colorado company took from Last Chance Gulch, \$40,000 in three months. Water is now very scarce, and only one company is at work. Mr. Maxwell is bringing water from the Red river, which will give an abundant supply. Many gulches prospect from three to fifty cents to the pan, and Grouse Gulch as high as \$1 to the pan. On Spanish Bar, one company is at work with 8-inch boxes, and with a limited supply of water are making from \$5 to \$15 to the man per day. There are from 300 to 500 men there.

NEVADA.

Union, Dec. 21st: The mill of the Red Mountain & Peak Co. in Silver Peak district is progressing rapidly. Forty men are engaged in its construction. The capacity of the mill when completed, will be 40 stamps, 20 of which, in connection with the necessary machinery, will be in running order by the first day of March. The mines of the company are opening well, and are being thoroughly developed. About 2,500 tons of ore are ready for shipment to the mill.

A letter from Pine Grove states that the prospect of that camp were never more flattering than at present. A large amount of prospecting is being done, and there are few or no idle men to be seen. Mr. Kimball, of Virginia City, has assumed the duties of foreman of the Wheeler mine. The Wilson Co. expect to have their 10-stamp mill in operation about the 1st of January. The mine of this company is now opened in several places and good ore is being taken out. On a number of the more prominent locations work has recently been commenced in a manner that means business.

The much talked of reverberatory furnace of Dr. Dozier at Hot Springs, has been tried, and equals the most sanguine expectations of its builder. We were shown a letter from there, of a late date, which stated that but for an accident by which one of the stones (soapstone) which compose a portion of the crucible was displaced, the test would have been satisfactory; as it was, enough metal has been saved to prove the works a success. The only difficulty now appears in the heating and cooling of the material used in the formation of the crucible, as the chemicals used are of such a nature as to require an intense heat.

Reese River.

The snow on the mountains, and the bad state of the roads generally, have prevented the arrival of our mails from this locality. The cheering countenance of the *Reveille* is wanting in our sanctum; without it we feel lost when we come to make up our weekly summary, as we are always sure of finding something in it that will interest our readers. We suppose it is watching (as its name indicates) the progress of old Sel in repairing the roads, somewhere between this place and Virginia City. When it does arrive, we may expect an extra "batch" of mining news.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, Dec. 29th: Messrs. E. B. Briggs and George Sanders, from Gold Cañon, say that it will require six months' work to replace the flumes washed out in that place by the late flood, and will cost the owners the profits of twelve months' running.

Transcript, Jan. 3d: From a private letter received from Virginia City, we learn that great damage has been done by the storm on the other side of the Sierras. Nearly all the mills along the Carson river have been destroyed or very much damaged, and the hauling of ore to the mills is generally suspended.

From the *Trespass* we learn that great damage was done in the vicinity of Virginia to the roads. In the Flowery district a reservoir of tailings was washed away, the loss of which is estimated at \$300,000. Great damage was done to flumes and mining works throughout the State.

SILVER MINES IN MAINE.—Dr. C. T. Jackson, of Boston, has assayed samples of ore from the Industry silver mine, in the State of Maine. He says the value of the ore is eight ounces sixty grains of silver per ton of the concentrated ore, worth nearly \$11 silver being put at \$1.35 per ounce. The value of the rock before concentration will be 2½ ounces of fine silver, or \$3.37 per ton. Dr. Jackson remarks that this discovery of silver in magnesian, white or gray pyrites, is new and of much interest. Our Nevada friends would find no workable value in ore no richer than that above described.

FOR THE TOOTH ACHE.—At a meeting of the London Medical Society, Dr. Blake, a distinguished practitioner, said that he was able to cure the most desperate case of tooth ache, unless the disease was connected with rheumatism, by the application of the following remedy: Alum, reduced to an impalpable powder, two drachms; nitrous spirits of ether, seven drachms; mix and apply to the tooth.

Rocks are said to be "slaty" when they can be split into plates, and "granular" when made up of grains or pieces in the form of imperfect crystals; topaz rock is both slaty and granular; this, we believe, is an exception.

The Glaciers of Alaska, Russian America.

In a recent number of the *American Journal of Science*, Prof. W. P. Blake describes several glaciers in Russian America, which he visited in May, 1863. We make the following extracts:

On approaching the northwest coast of America from the west, the mountain chain of the interior is seen to be lofty and alpine in its character. The ridges are sharply serrated, and rise here and there into needle-like pinnacles, giving an outline against the sky that contrasts strongly with the gently sloping sides of the truncated cone of Edgecombe, a fine extinct volcano which marks the entrance to the harbor of Sitka.

The rocky peaks of the interior rise above broad fields of snow, which give birth to numerous glaciers, while Edgecombe, and the ridges upon the coast, are in great part covered with a dense forest of pines and firs. No glaciers are found upon the coast at Sitka or south of it, for under the influence of the warm currents of the Pacific, the climate is comparatively mild, while a short distance in the interior, the winters are almost Arctic in severity.

In ascending the Stikine river one glacier after another comes into view; all of them are upon the right bank of the stream and descend from the inner slope of the mountain range. There are four large glaciers and several smaller ones visibly within a distance of sixty or seventy miles from the mouth.

The first glacier observed, fills a rocky gorge of rapid descent, about two miles from the river, and looks like an enormous cascade.

The second glacier is much larger, and has less inclination. It sweeps grandly out into the valley from an opening between high mountains from a source that is not visible. It ends at the level of the river in an irregular bluff of ice, a mile and a half or two miles in length, and about 150 feet high. Two or more terminal moraines protect it from the direct action of the stream. What at first appeared as a range of ordinary hills along the river, proved on landing to be an ancient terminal moraine, crescent-shaped, and covered with a forest. It extends the full length of the front of the glacier.

The usual phenomena of glaciers were exhibited on this glacier, such as crevasses, pinnacles of ice, transported blocks of granite, sand cones and glacier tables.

RAILROAD COSTS AND PROFITS IN GREAT BRITAIN AND THE UNITED STATES.—The capital invested in railroad enterprises located in Great Britain is within a small fraction of \$2,277,000,000. The amount similarly invested in the United States, is \$1,517,000,000. The number of miles of railroad in Great Britain is but 13,289, while, with one-third less aggregate cost, the United States has built 36,896 miles, or nearly three times as much as Great Britain. The average cost per mile of English railroads is over \$160,000; while those of the United States have averaged a fraction less than \$42,000 per mile.

The total gross earnings of all the railroads in Great Britain in 1865 was \$179,450,000; total operating expenses, \$85,745,000; net earnings, \$93,705,000. The average earnings of all the railroads in the United States we have not at hand.

In 1866, the gross earnings of the Pennsylvania and Erie railroads, jointly, were equal to 18 per cent. of the gross earnings of all the railroads in Great Britain collectively.

In the same year the gross earnings of all the steam power railroads in New York and Pennsylvania were equal to 66 per cent. of the gross earnings of all the railroads in Great Britain; while the total cost of the former was only 16 per cent. of the latter. Railroad investors in the United States ought to derive much encouragement from such statistics as the above.

COTTON.—It is said that the present price of cotton will not yield to the planter as much profit as six cents per pound did before the war. The supply of American cotton to England this year has been five per cent. beyond that of last year, while the quantity from India has experienced a reduction of 29 per cent.

MILITARY INSTRUCTION IN COLLEGE.—Efforts are being made through the War Office, to introduce a course of military drill and instruction into the principal colleges of the United States. A bill will be introduced into Congress at its present session for the establishment of a national bureau of military instruction, under the direction of which suitable military professors will be appointed to such colleges as are disposed to cooperate in the enterprise, who will be supported at the national expense. It is contemplated that a limited number of college graduates, showing greatest proficiency in military studies, shall have their names published in the *Army Register*, and one graduate per year from each college will be commissioned as Second Lieutenant in the army, on the same footing with West Point graduates. Quite a number of colleges have already signified their willingness to enter into the plan. The readiness with which the students from the various colleges throughout the land repaired to the army, as volunteers, during the late rebellion, has no doubt furnished the inducement to this move. The necessity of a more general military education was terribly felt during the late war, and we know of no better plan to secure it than the one here proposed. It will in no wise interfere with the ordinary routine of study, but will rather aid it by the healthy exercise and more vigorous discipline which will thereby be secured. Major Whittlessey of the U. S. A., under direction of the Secretary of War, has been laboring, for the past year, in maturing this plan, which he has now embodied in the form of a bill, which will soon be submitted.

RELIABLE INFORMATION.—The New York *Stockholder* publishes some information communicated to the General Land Office at Washington, by the Surveyor-General at San Francisco, in the course of which quite a number of towns are described as being located upon certain tracts of land recently surveyed. Among those towns are mentioned Nevada City, Grass Valley, and the town of "Union Hill." As the location of the latter named town has never yet been transferred from the maps of the surveyor to our local county maps, we give a description of it as we find it in the *Stockholder*:

"The town of Union Hill is about two miles east of Grass Valley, and three miles south of Nevada City, and contains three thousand inhabitants, the most of whom are employed in mining. The mines here are mostly the hydraulic placer gold mines, and show no signs of failing."

We commend the above scrap of information to the especial attention of Mr. Bean, trusting that it will find a place in the next edition of his Nevada County Directory.

CURIOUS DISCOVERY.—A French scientist, while examining the contents of the stomach of a mummy, found a small roll, which, after much investigation, he proved to be the skin of the sole of the feet of the mummy itself. Continuing his investigations, he has shown that the post mortem removal of the skin from the sole of the feet was a common practice, and was done as symbolical of the eternal separation of the deceased from the earth which he had so long trod with the sole of his feet—and as a sign of his final manumission from the thralldom of the world.

MIXED.—We saw yesterday, says the *Marysville Appeal*, a laboring party which brought to our mind the mixed people living in our city. A party of six men were lifting a stone, and no two of the six were of one nation. There were a German, Frenchman, Spaniard, Mexican, Chinaman, Negro and Yankee, all speaking the English language. What a country?

In Paris it was recently shown that duck rearing is nearly three times more profitable than hen rearing. The in-duck-tive process of reasoning was used in ascertaining the truth, hence this result.

Fossil Ivory from Alaska.—A correspondent of the New York *Times*, speaks of the discovery of fossil ivory in Alaska. There is much probability that future explorations will reveal extensive deposits of this valuable commercial product in our new possessions. Should such be the case, the discovery will be most opportune, as the sources of supply from which ivory has heretofore been drawn, are rapidly giving out.

ALASKA is expected to become the New England of the Pacific—a Yankee country full of seamen and fishermen, and similar adventurous folks.

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Mr. C. T. Roney is our duly authorized agent for Sacramento County. Nov. 23, 1867.

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San Francisco:

Saturday Morning, Jan. 11, 1868.

Notices to Correspondents.

J. M., Auburn.—We are not aware of the character of the asserted improved process, which it is proposed to soon put to a practical test at Cerro Gordo, Inyo Co. The latest and only particulars with which we have become acquainted, are that Dr. Dozier asserts that the only chance of failure for his proposed method is whether the crucibles will withstand the destructive action of the chemicals which he proposes to employ in the course of reducing the ores. Now, as these ores consist chiefly of galena, accompanied by a less than ordinary quantity of gangue, and as the mode of treating such is well known, and the most useful fluxes, deoxidants and desulphurants for every variety and for any varied manner of procedure are also equally well known, we do not anticipate hearing of any startling results. Any surprise on our part would rather be to hear of some decided success of a novel character rather than of failure. Dr. Dozier ought to have known whether his chemicals would produce the damaging effect which it appears he is now apprehensive of.

B. S. P., TABLE MOUNTAIN, TUOLUMNE CO. There does not exist any sound reason for supposing that volcanic activity is any less at the present time than during former periods. In the address of the President of the Geological Section (Archibald Geikie, F. R. S.) of the British Association at their last meeting showed very clearly that confining the observations to the British Isles, volcanic activity has increased in force from the Lower Silurian period, up to the Miocene or middle tertiary, culminating at the latter time. Immense as has been the flow of basalts and lavas in various parts of this state during probably even a later period, they are more than rivaled by similar instances in Southern Africa. During the latest historical period, Shapart Jokuhl, in Iceland, has rivaled almost everything exhibited by pre-historic action.

ALBERTUS MINOR.—We believe the cost of the metal aluminum, when purchased in ingots and in quantity, is now reduced to about one-fourth the value of silver. Its production on an gigantic scale, and at a reasonable price, say from twenty-five to thirty cents per pound, would eventually be found a great boon to all civilized communities, and none would proportionally gain more than the Pacific States of America.

F. A., Marysville.—Without any knowledge of the components of the alloy, which you state that you find it sometimes impossible to flux, or only with difficulty making such workable, we are unable to furnish any advice. Perhaps you will furnish us with a more detailed description of the refractory alloy which you alluded to, especially the proportions of the different metals and the varieties of the base ores, if more than one is present. We suspect the trouble will be found in the latter fact.

PARISIENNE.—You are perfectly correct in affirming that your distinguished countryman, Antoine Laurent Lavoisier, was the first chemist who established the fact that the diamond was mere carbon. Lavoisier's scientific career commenced in 1770, and was ruthlessly cut short by the guillotine in 1794, during Robespierre's reign of terror.

A California Steam Plow.

The history of the plow, if we go back to the time when it consisted simply of a forked branch of a tree, dragged over the ground by a single ox or mule, would form an imposing and most interesting volume; and yet it is not necessary to go back half a century, even, to sum up the greater part of the improvements which have been made in this most important implement.

It is within the recollection of many who will probably read this paper, that their grandfathers employed the leisure of their long winter evenings in slowly and laboriously shaping, from the twisted section of an apple tree, a mold-board for the plow; which, with its lower edge shod by the village blacksmith, with a narrow horder of iron, was to loosen up the soil for the next spring sowing and planting. Iron and steel soon altogether supplanted the more perishable wood, and hy-and-hye that humble instrument began to attract the attention of the skillful mechanic and engineer, who commenced at once to study out the law of least resistance as thereto applied, until the true curve was finally deduced. Since that time, Scott Russell's wave-line, as applied to floating bodies, has not been more scientifically applied than is the same principle to the production of the plowshare.

The next move was to apply the universal motor, steam, to the driving of the plow, instead of slow and expensive animal power. To accomplish this, various devices have been resorted to. Chief, and most successful among experimenters in this direction have been the Messrs. Fowler and Mr. Howard, both, we believe, of Leeds, England. We have no space, at the present time, to go into the interesting particulars, which, within the past five or six years, have eventuated in such important results as have been arrived at by those gentlemen—the absolute demonstration of the practicability of steam plowing and cultivation. So important was this considered, at the outset of their experiments, or just before, that Mr. Bronson Murray, a leading and wealthy farmer in Illinois, offered a reward of \$50,000 for a practical steam plow. Whether this reward has ever been claimed and paid, we know not; but if not, and if the offer is still good, we trust the claims of Messrs. Coffin & Standish, whose first experimental trial we now propose to describe, shall be duly considered, both on the grounds of superiority over all others, and from the fact that it is an American (California) invention.

FIRST TRIAL OF THE COFFIN AND STANDISH OR "MAY-FLOWER" STEAM PLOW.

We have no space to go into the details of the construction and working of either the Fowler or Howard plows, or of the various other, but unsuccessful devices that have been from time to time essayed in various parts of the United States. In our issue of December 28th we gave a somewhat detailed description of the plow recently invented by Mr. Standish, of Martinez, and briefly contrasted it with the English steam plows. On Monday evening last we received a telegraphic dispatch from the inventor, saying that the first trial of his plow would take place on the afternoon of the next day, and inviting us to be present. In company with quite a number of others from this city, who received a similar call, we took the Suisun boat for Martinez on Tuesday morning. On the arrival of the boat, we found the main street of the village crowded with a great number of persons, who had come together, from the town and neighboring country, to witness the trial. The plow, or rather its locomotive carriage, with the stars and stripes floating above it, was then working its way slowly through the mud-holes in the street to the Common, just beyond the village, where it was soon set to work.

A perusal of the article already referred to will inform the reader of the principle on which the plow operates. The chief object of this trial was to determine how the principle would work practically. The result was more than satisfactory—not one of those present, including a large number of

skillful and practical farmers, questioned its practicability; while the manner in which the work was done seemed to have exceeded the anticipations of even the inventor himself.

The plow was set to work upon a hard, wet, adobe soil, covered with grass—an open common by the side of the road—which had been subjected to the tramping of the people and of cattle over since the town was settled, and which had never been disturbed since the time the whole country roundabout was turned over by the up-throw of Mount Diablo. The admiration of every one was excited to see the rapid whirling and cutting of the knives—which constitute the plow—cutting, tearing, stirring up and turning over the compact and cohesive adobe soil; penetrating below the grass roots and throwing up and exposing the earth to the aerating and fructifying influences of the atmosphere.

We watched with astonishment, the effect produced by this truly novel instrument. Surely the hosom of old mother earth was never before tickled in such a vigorous manner. Such an upheaving of the soil, such a throwing, stirring and pell-mell distributing of it through the twelve foot swarth which the machine cut, as it locomoted forward, was never before seen. The superior manner in which the work was done was the admiration of every one. No other plow ever invented, even if followed by a dozen harrows or other pulverizers, could have so completely pulverized and loosened up for the free admission of air, wind and rain, that plastic, fatty, adobe soil. We could compare the machine to nothing but a huge and most effective sausage-cutter. If the soil had been dry, it must have pulverized it to the finest dust, and left it like a freshly made ash heap.

The mechanical details of the machine are, as yet, far from being perfected; although no difficulty whatever is apprehended in this direction. The success of the principle, only, was sought at this trial, and we congratulate the ingenious and fortunate inventor on the result which he has attained. We have the fullest confidence that every mechanical defect and deficiency can be easily overcome. In the course of the trial, the arms which supported one set of knives were broken off by the latter coming in contact with an unseen boulder; but the machine will but seldom be needed to work in soil where boulders occur. Loose stones will not interfere with its working; and the inventor proposes to arrange the knives with adjustable holders, which will accommodate themselves to any obstructions whatever.

The greatest difficulty will probably be to construct a machine sufficiently light, and retain at the same time the necessary strength to locomote itself over the ground, in advance of the plowing. The combination of lightness with strength, in steel, which may be taken advantage of throughout—in boiler, engine and plow—will doubtless render that both practical and reasonably cheap. But we have no room to follow this subject further. We propose to say a word next week upon the superiority of steam over ordinary plowing, in improving the land, in bringing about an increased yield of crops and in point of economy, and will close the present article by merely adding that in the minds of all intelligent thinking men the steam plow has a grand mission to fulfil in America, and nowhere will its use be found more important than in the fertile valleys, and in the midst of the high priced labor of California. Messrs. Coffin & Standish are the proprietors of this invention.

ANNUAL MINING REVIEW FOR 1867.—We devote a large space in our columns to-day, to a very full and carefully prepared mining review for 1867, for which we are indebted to our neighbors of the *Commercial Herald*. This review will be found of much value, and should be carefully read and considered by all who are interested in the progress of the mining interests of California. The *Herald* has done a good service to the industrial interests of the State, generally, in the production of this paper, only a part of which appears in our present issue.

PARLOR CONCERT.—Mr. Walter S. Pierce gave an entertaining concert, at his piano rooms, on Market street, on Tuesday evening last. The music was of a high order, and selected with judgment. Some of the first musical talent in the city was engaged for the occasion, and all acquitted themselves with credit. We trust Mr. Pierce will give us more. Any one who aids in the cultivation of a refined taste for music in the community, should receive its thanks and support.

Foundry Work—Fulton Foundry.

Our friends, Hinchley & Co., of the Fulton Foundry, on Fremont street, appear to be doing a thriving business at this time. We dropped in at their establishment a few days since, and in looking around gathered the following items of foundry and machine work there in progress, or but recently sent out:

They are now engaged upon two engines for Simpson's Dry Dock, now in process of construction at Oakland Point, but designed for permanent location at some point on this side. Eight pumps will accompany these engines, to be employed in rapidly freeing the dock from water, after it has received its load.

They are building two mining pumps for the New Almaden Quicksilver Mining Co., and a hydraulic pump and press for the Pacific Powder Mill Co. in Marin county. The power of the press will be six tons to the square inch.

The same foundry is getting up the machinery for a large double circular sawmill with shafting, mill irons, etc., for Mr. Duff, to be located near Hnmholdt Bay. This mill will have one of Hendy's patent gang mills attached.

They have also just sent off the machinery complete for a double circular-saw mill, for Stanford Bros., which is to be located in the Sierra Nevada Mountains, near Donner Lake.

They are also engaged in getting up the machinery for the manufacture of the new powder, which will be prepared and sold by the "Giant Powder Co." These works will soon be in readiness for supplying this market with this new and terribly effective, yet very safe explosive agent.

Brodie's crushers are manufactured at this foundry. One of these machines was recently ordered for the Western company's mill, at Silver City, near Nevada, where it has given such satisfaction that another has been ordered for the same vicinity by Golden Rule & Co., which has just gone forward. This mill is capable of preparing forty tons of rock for the stamps every twelve hours.

A SUPERIOR CAST IRON

Has recently been introduced to the public through this foundry. It is a French production, and has latterly received much attention from the French Government—it being considered the best iron yet produced for casting cannon. It is used here principally for hydraulic presses, crushers, shoes, dies, etc., where an extremely hard and tough iron is required. This iron is remarkable for the readiness with which it chills. It will chill from an inch to one and a half inches deep. Two brands of this iron are made, one of which is hard and tough, and the other soft and tough.

HAYES' IMPROVED STEAM PUMP

Is also manufactured at this foundry, where one of them can at all times be seen and examined. This pump is pronounced by engineers and other persons competent to judge of its merits, and who have used it, as most simple, durable, compact and but little liable to wear. Perhaps its most important advantage is found in the extreme simplicity and adjustableness of its valves. The valve motion of this pump is obtained by a simple taper plug, with the valve placed within the plug and below the water ways. It makes its own joints, and can be removed at any time for examination, cleaning or repairing, by simply removing a cap which is held by a single screw. The removal of the cap allows the plug, containing the valve, to be drawn out and cleaned or adjusted. That operation requires but a moment of time, and the plug is perfectly convenient of access. The Pacific Mail Steamship Company, under the advice of their Superintendent, Mr. Pollock, have had one of these pumps placed upon their new steam transport, which has just been constructed at this port, for use in the Bay of Panama, and which will leave for its place of destination in a few days. These pumps are now made of two sizes; each of large capacity. The inventor proposes to construct a smaller one, to be used as a feed pump for steam boilers, for which it appears to be peculiarly applicable.

NEW MAP OF THE PACIFIC STATES.—H. H. Bancroft & Co., of this city, have just published a handsome map of California, Nevada, Utah, Arizona, Oregon, Washington, Idaho and Montana. It is on a scale of twenty-four statute miles to the inch, and is in size about four feet by four feet and a half.

It comes in good time. Such a map was needed. The changes that have taken place since the latest previous maps were prepared, by the settling up of new sections of the country, the creation of new counties, and the opening of new mining districts, in Southern California, Southern Nevada, Montana, Arizona, etc., have made necessary a good deal of guess-work, even with the aid of the best of these maps. This one is the first, we believe, which gives in full the California counties of Kern, Inyo and Mono, etc., etc., with the new and promising mining regions which they include. Also the Silver Bend and Pahrangat districts in Nevada.

The lettering of the map is clear and distinct, and the coloring done in such a manner that the outline of each county is defined at a glance. The area of each State and Territory in square miles, with its population, and divers other statistics, is given. The map will make a handsome and a useful wall ornament for the office or the study.

PACIFIC COAST ALMANAC.—Henry G. Langley has just issued a neat and useful little publication entitled "The Pacific Coast Almanac and Year Book of Facts for 1868." The work is of large duodecimo size, and comprises 98 closely-printed pages. The synopsis and tables given, bear evidence of the usual care and precision of that well known statistician—they are compact and concise, and contain in a small space a vast amount of valuable matter. It is to the Pacific coast; what the Tribune almanac is to the Atlantic coast. In addition to the usual astronomical calculations and calendar, it contains the most important of the recently passed National and State laws; the constitutional amendments; the various departments of the National and State government; lists of foreign ministers; Members of Congress; post offices; tables of population; notices of courts; State institutions; State finances; National and State expenditures, finances, etc., etc. One of the most valuable features of the work is a concise review of the resources, manufactures and minerals of California. As a whole, it will be found extremely valuable for daily reference among all classes of the community. Price, fifty cents.

PETROLEUM AS STEAM FUEL.—TESTS TO BE MADE IN SAN FRANCISCO.—Dr. C. G. Page and James D. Linney, arrived in this city by the steamer of the 2d instant, to make some practical tests here of Foot's invention for burning petroleum for steam fuel. The latter named gentleman was the constructing and operating engineer in the experiments which have been made, the past summer, in several of the Atlantic cities. The time and place of the preliminary experiment here will be announced this evening or on Monday. It will probably take place about the middle of next week.

We understand that arrangements are also in progress for a trial here, of a similar invention made by Mr. White, of this city. This invention was successfully tried some two or three months since upon a stationary boiler at Santa Cruz. The experiment will soon be repeated in this city, and probably on one of the city fire engines. The rivalry of these two inventions—California vs. New York—will lend additional interest to these proposed trials, each of which will be fully reported in this paper.

PETROLEUM FOR FUEL.—The Secretary of the Navy states, in his annual report, that \$5,000 has been expended for petroleum with reference to its use as fuel for steamers in place of coal. The conclusion arrived at was that petroleum is not as good as coal.

MINING SHAREHOLDERS' DIRECTORY.

(Compiled for every issue, from advertisements in the Mining and Scientific Press and other San Francisco Journals.)

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY OF DELINQUENT SALE.	DATE OF PAYMENT OF DIVIDENDS.
Amador Co., dividend, \$6 per share.....	Payable Jan 10	Arizona Consolidated, Dec 23, 1867.....
Alpha, Gold Hill, Storey co., Nov 15, \$10.....	Dec 23—Feb 17*	Alpha, Gold Hill, Storey co., Nov 15, \$10.....
Ancient River Channel, Nov co., Nov 22, \$20.....	Dec 27—Jan 13	Chollar Potasi, Storey co., Nov, \$15.....
Belcher, Storey co., Nov, Dec 27, \$15.....	Jan 27—Feb 23	Belcher, Storey co., Nov, Dec 27, \$15.....
Belcher, Baldwin & Abbotville, Storey co., \$5.....	Jan 27—Feb 23	Cherokee Flat H. G., Butte co., Cal, Jan 7, \$5.....
Chollar Potasi, Storey co., Nov, Dec 10, \$15.....	Jan 15—Feb 3	Chollar Potasi, Storey co., Nov, Dec 10, \$15.....
Chollar Potasi, Storey co., Nov, \$15.....	Jan 15—Feb 3	Chollar Potasi, Storey co., Nov, \$15.....
Chollar Potasi, Virginia, Nev., Semi-Annual Meeting Jan 3.....	Jan 27—Feb 11*	Chollar Potasi, Virginia, Nev., Semi-Annual Meeting Jan 3.....
Cordillera, Mex, Jan 2, \$1.....	Jan 27—Feb 11*	Cordillera, Mex, Jan 2, \$1.....
Cosala, Sinaloa, Mex, Dec 2, \$1.....	Jan 7—Jan 23	Cosala, Sinaloa, Mex, Dec 2, \$1.....
Clark Mountain H. G., Nevada, Dec 30, \$5.....	Jan 15—Feb 3	Clark Mountain H. G., Nevada, Dec 30, \$5.....
Chillicothe, Sonora, Mexico, Nov 27, \$3.....	Jan 3—Jan 23*	Chillicothe, Sonora, Mexico, Nov 27, \$3.....
Crown Point, Nev. dividend \$30.....	Payable May 15	Crown Point, Nev. dividend \$30.....
El Padre, Mex, Jan 10, \$5.....	Feb 11—March 5*	El Padre, Mex, Jan 10, \$5.....
Eschequer, Storey co., Nov, Dec 9, \$2.....	Jan 11—Jan 23	Eschequer, Storey co., Nov, Dec 9, \$2.....
Empire M. & M., Nev., dividend \$6.....	Payable May 15	Empire M. & M., Nev., dividend \$6.....
Fogus M. & M., Apador co., Cal, Jan 4, \$5.....	Feb 8—Feb 23	Fogus M. & M., Apador co., Cal, Jan 4, \$5.....
Gold Hill M. & M.....	Annual Meeting Jan 13	Gold Hill M. & M.....
Gold Hill M. & M., dividend, \$8 sh.....	Payable Dec 26	Gold Hill M. & M., dividend, \$8 sh.....
Gold Hill M. & M., dividend, \$7 50.....	Payable Dec 16	Gold Hill M. & M., dividend, \$7 50.....
Hone Gravel, Nevada co., Dec 16, \$1.....	Jan 23—Feb 10*	Hone Gravel, Nevada co., Dec 16, \$1.....
Honolulu, Del Norte co., Nov 1, 15c.....	Dec 10—Jan 6*	Honolulu, Del Norte co., Nov 1, 15c.....
Hale & Norcross, Virginia, Nev., Dec 10, \$75.....	Jan 13—Feb 1	Hale & Norcross, Virginia, Nev., Dec 10, \$75.....
I. X. L., No. 2, Alpine co., Oct 18, \$1.....	Dec 16—Jan 23*	I. X. L., No. 2, Alpine co., Oct 18, \$1.....
I. X. L., Alpine co., Dec 12, \$1.....	Jan 15—Feb 3	I. X. L., Alpine co., Dec 12, \$1.....
Imperial, Virginia, Nev., div, \$10.....	Payable July 15	Imperial, Virginia, Nev., div, \$10.....
Julia, Reese River, Nev.....	Meeting Feb 1	Julia, Reese River, Nev.....
Josephine Quicksilver, San Luis Obispo, div, \$2.....	July 8	Josephine Quicksilver, San Luis Obispo, div, \$2.....
Kearns, Inyo co.....	Meeting Jan 21	Kearns, Inyo co.....
Kohler Brothers S M Co.....	Annual Meeting Jan 13	Kohler Brothers S M Co.....
Kentuck, div, \$7 50 per share.....	Payable Nov 9	Kentuck, div, \$7 50 per share.....
Lady Bell, Del Norte co., Jan 8, 15c.....	Feb 10—March 5*	Lady Bell, Del Norte co., Jan 8, 15c.....
La Blanca, Sonora, Mex, Jan 2, \$2.....	Feb 1—Feb 17*	La Blanca, Sonora, Mex, Jan 2, \$2.....
London Q. M., Shikony co., Nov 23, 70c.....	Jan 4—Feb 4	London Q. M., Shikony co., Nov 23, 70c.....
Lyon M. & M., El Dorado co., Nov 27, 50c.....	Jan 1—Jan 17*	Lyon M. & M., El Dorado co., Nov 27, 50c.....
Nuestra Señora, Mex, Jan 3, \$1.....	Feb 10—March 5*	Nuestra Señora, Mex, Jan 3, \$1.....
Neagle & Corcoran, Storey co., Nov, Nov 26, \$2.....	Jan 6—Jan 23	Neagle & Corcoran, Storey co., Nov, Nov 26, \$2.....
North Star, Lander co., Nev, dividend.....	Payable Nov 23	North Star, Lander co., Nev, dividend.....
Old Tenabo, Lander co., Nev, Jan 9, \$2 50.....	Feb 20—March 12*	Old Tenabo, Lander co., Nev, Jan 9, \$2 50.....
Oxford Beta, Esmeralda, Nev., Nov 18, 50c.....	Jan 23—Feb 12*	Oxford Beta, Esmeralda, Nev., Nov 18, 50c.....
Old Colony, Lander co., Nev, Dec 19, \$2.....	Jan 25—Feb 20*	Old Colony, Lander co., Nev, Dec 19, \$2.....
Peninsula, San Antonio, Mex, Dec 3, \$10.....	Jan 14—Jan 29	Peninsula, San Antonio, Mex, Dec 3, \$10.....
Redington Quicksilver.....	Meeting Jan 15	Redington Quicksilver.....
Rippon, Alpine co., Dec 17, 50c.....	Jan 22—Feb 8*	Rippon, Alpine co., Dec 17, 50c.....
Sierra Nevada, Storey co., Nev.....	Annual Meeting Jan 13	Sierra Nevada, Storey co., Nev.....
Sierra Nev, Storey co., Nev, Dec 11, \$4.....	Jan 15—Feb 3	Sierra Nev, Storey co., Nev, Dec 11, \$4.....
Savage, Virginia, Nev, dividend.....	Payable Dec 3	Savage, Virginia, Nev, dividend.....
Santiago, Silver City, dividend.....	Payable Dec 19	Santiago, Silver City, dividend.....
Sophia Cons, Tuolumne co., Dec 11, 50c.....	Jan 10—Jan 23*	Sophia Cons, Tuolumne co., Dec 11, 50c.....
Shoshone, Lander co., Nev, Dec 11, \$1.....	Jan 20—Feb 10	Shoshone, Lander co., Nev, Dec 11, \$1.....
Sweet Valentine, Yuba co., Nov 30, 75c.....	Jan 3—Jan 23*	Sweet Valentine, Yuba co., Nov 30, 75c.....
S. F. & Castle Dome, Arizona, Nov 10, 75c.....	Jan 7—Jan 27*	S. F. & Castle Dome, Arizona, Nov 10, 75c.....
Siempre Viva, Sinaloa, Dec 4, 25c.....	Jan 10—Jan 27*	Siempre Viva, Sinaloa, Dec 4, 25c.....
St. Louis, Amador co., Nov 24, \$1 50.....	Dec 25—Jan 13*	St. Louis, Amador co., Nov 24, \$1 50.....
Texas Flat, Fresno co., Cal, Jan 3, 25c per sh.....	Feb 15—Mar 3	Texas Flat, Fresno co., Cal, Jan 3, 25c per sh.....
U. S. Grant, Nevada co., Dec 10, \$5.....	Jan 13—Feb 8*	U. S. Grant, Nevada co., Dec 10, \$5.....
Ventana, Mex, Jan 8, \$1 50.....	Feb 10—Feb 27*	Ventana, Mex, Jan 8, \$1 50.....
Whitman, Lyon co., Nev, Oct 31, \$1 50.....	Jan 1—Jan 23	Whitman, Lyon co., Nev, Oct 31, \$1 50.....
Yellow Jacket, Storey co., Nov, Nov 15, \$100.....	Dec 16—Jan 15	Yellow Jacket, Storey co., Nov, Nov 15, \$100.....
Yellow Jacket, Gold Hill, div, \$75 sh.....	Payable July 10	Yellow Jacket, Gold Hill, div, \$75 sh.....

Those marked with an asterisk () are advertised in this journal.

NEW POWDER WORKS.—We understand that the "Giant Powder Co." which has been organized with the view of manufacturing the new blasting powder, which attracted considerable attention in this city last spring, and which was tried on the line of the Day View Railroad, beyond the Potrero, will soon be ready to commence the manufacture of the article for this market. It will be recollected that the company's expert, who came out from Germany to superintend the manufacture, died, very suddenly, soon after his arrival, which necessitated the sending for another person to take his place. Such a party has recently arrived, and the machinery and appliances necessary for the manufacture are now in process of construction at the Fulton Foundry.

NEW INCORPORATIONS.—Articles of incorporation have recently been filed in the County Clerk's office in this city as follows: **SAN JACINTO TIN CO.**—San Francisco. Jan. 3d. Capital stock, \$400,000; 40,000 shares, \$100 each. Trustees: E. Conway, H. W. Carpenter, L. L. Robinson, Edward K. Carpenter, W. H. Patterson and Samuel F. Butterworth.

GOLDEN GATE HOMESTEAD ASSOCIATION. San Francisco. Jan. 3d. Capital stock, \$99,200; 810 shares, \$320 each. Trustees: Fred. Loehr, J. Gundlach and Emil Kower.

STOW FOUNDATION CO.—San Francisco. Jan. 8th. Capital stock, \$500,000; 5,000 shares, \$100 each. Trustees: H. F. Williams, Edmund Scott, E. W. O'Neil, Geo. Hearst and Charles M. Tyler.

NEWSPAPERS IN ENGLAND.—The circulation of the London daily journals is set down at a little over 2,000,000 for the present year against 360,000 in 1851. The necessity for every man to take a paper is almost as universally acknowledged in England as in the United States.

PHOTOGRAPHS are now taken on the dial plate of watches—a very pretty idea, especially in the holiday times. A watch, thus photographed, must be treasured with vastly more regard from the constant presence of the likeness of the giver, brought to view every time it is opened.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. LUTY, Secretary. Office, 305 Montgomery street, corner of Pine, San Francisco. 2v15

OLNEY & CO., ARCHITECTS and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 315 Montgomery street, San Francisco. 1v10

SECRETARYSHIP FOR MINING COMPANIES.—A gentleman of education, ability and experience, is desirous of procuring a position as Secretary, or Assistant Secretary, in some good Mining Company. Has most unexceptionable references. Address "SECRETARY," at this office. 6v15r

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trade supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 2v15 3m

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. **DR. BEERS,** corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 1v14 1f

Accidents.

The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required. **WM. MACDONALD & CO.,** Gen'l Agents, 121 Montgomery st., San Francisco, Opposite Occidental Hotel. 2v16 3m

NORTH AMERICA

Life Insurance Company.

Usual Restrictions on Occupation and Travel ABOLISHED!

Policies of this Company are guaranteed by the State of New York, which is true of no other Company on this Coast.

The most Responsible and Liberal Company in the World!

J. A. EATON & CO.,

Managers Pacific Branch, 302 Montgomery st. 2v14n9p SAN FRANCISCO.



JOHN G. HODGE & CO., Importers and Wholesale Dealers in **STATIONERY, Blank Books, School Books, PLAYING CARDS, Wrapping Paper, Paper Bags, etc., etc.** Nos. 329 and 331 Sansome street, corner Sacramento. Special attention given to orders from Country Merchants. 2v16ow-19p

100,000 Lives Lost Yearly from the Use of Tobacco.

SAVE YOUR LIFE, SAVE YOUR MONEY, AND RESTORE YOUR HEALTH by using **DR. L. M. BYRNE'S ANTI-DOPE FOR TOBACCO.** This is not a substitute, but a cure for Chewing, Smoking and Snuff-taking. Fifty cents per package, sent on receipt of money. Address **TRAVELER BROS.,** 32 Merchants' Exchange, San Francisco. 2v16 3m

Builders' Insurance Company—OFFICE IN THE BUILDING OF THE CALIFORNIA SAVINGS BANK, California street, one door from Sansome street. **FIRE AND MARINE INSURANCE.** 1v14 9pqr

Perry Davis' Vegetable Pain Killer.

Sudden colds, coughs, etc., can be cured immediately, as hundreds can testify, by mixing about one teaspoonful of Perry Davis' Vegetable Pain Killer with four tablespoonfuls of molasses, mixed well together, and taken as your coughing spell comes on; three teaspoonfuls of the mixture will answer for a dose. Also rub a little of the Pain Killer on the hands, and inhale the scent of it into the lungs. After you have taken the medicine, bathe the throat and around the collar-bone, also across the upper part of the breast and down the sides, if they have been made sore by coughing, and you will soon get relief if you do not neglect it too long. The sooner the medicine is applied, the more speedy the relief. In all cases, if you do not get relief in thirty minutes, take it again, and bathe freely according to directions.

Prices, 25 cents, 50 cents, and \$1 per bottle. Sold by all Druggists, Grocers and Medicine Dealers everywhere. declm

Legitimate Photography OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photographs, and a special premium for the best Cabinet Portraits, to **SILAS SELLECK, 415** Montgomery street. Prices reduced to conform to Association rules. Patent secured. 2v15 6m

Foundry for Sale.

A One-half Interest in the **UNION IRON WORKS, SACRAMENTO,** Owned by William R. Williams, is offered for sale on the most favorable terms.

A Good Bargain

May be had, as the proprietor is going home to Europe. It is seldom that so good an opportunity is offered for a sure and permanent investment. The business of the establishment is exceedingly flourishing, as can be shown. The Shop is of brick, new and well built. The lot is 85 feet front by 183 feet in depth, in a good location for this business, on Front street, between N and O streets. Inquire at the office of the Foundry, or address **WILLIAM R. WILLIAMS, Sacramento, Cal.** 2v15 11f-16

Oakland College School.

THE PATRONS of this Institution have the choice of several distinct Departments. The **SENIOR CLASSICAL** is designed as preparatory to the College of California. The **SENIOR ENGLISH** affords a complete course of instruction in the English branches, in Theoretical and Practical Business, Science and Art. The **JUNIOR** is especially qualified to meet the wants of young boys, for whom separate apartments and Teachers are provided. Throughout all the various departments, great attention is given to the study of the Modern Languages. For further information, or Catalogues, address, **I. H. BRAYTON, Principal.** OAKLAND, California. 5v15qr9p.

ROOT'S Patent Force Blast Blower.

Adapted for Smelting, Foundry, Mining and Steamships. Requires 50 per cent. less power than any Blower now in use. For further particulars, address **KEE, BLAKE & CO.,** Stockton; or Wm. T. Garrett, corner Mission and Fremont streets, San Francisco. 5v15 11f-9p

PACIFIC Rolling Mill and Forge Co., SAN FRANCISCO, CAL.

Established for the Manufacture of **RAILROAD AND OTHER IRON**—AND—**Every Variety of Shafting**—Embracing ALL SIZES of Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames. —ALSO—**HAMMERED IRON** Of every description and size.

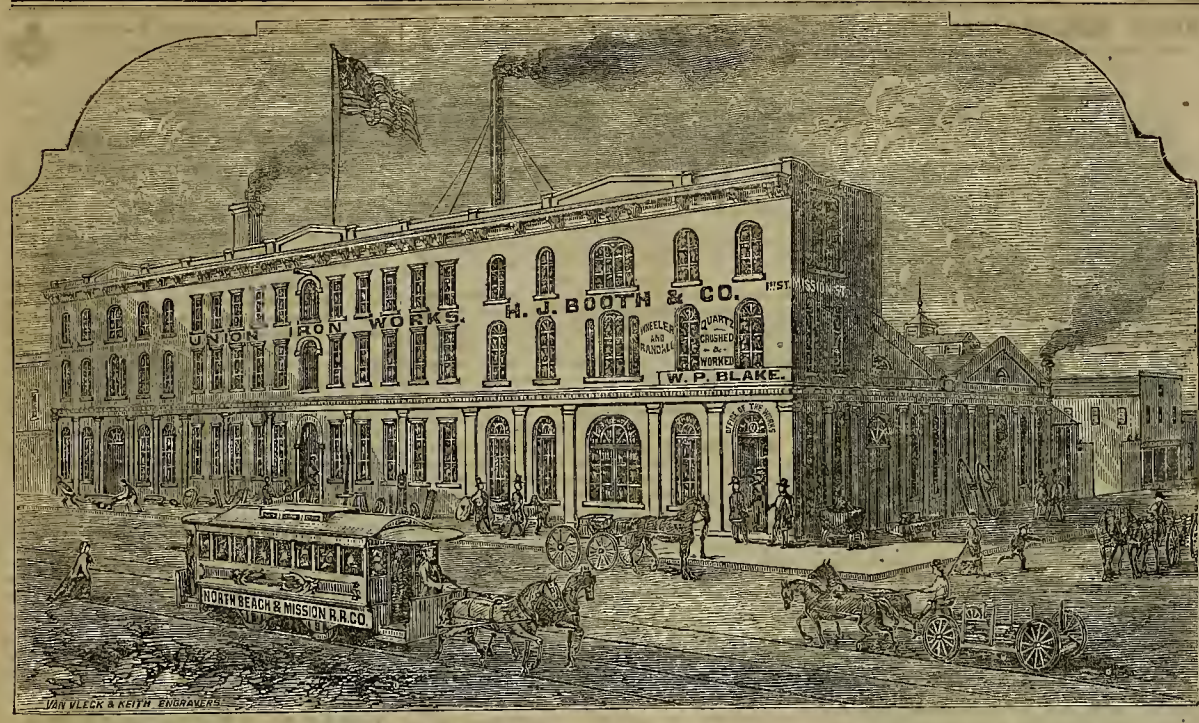
Orders addressed to **PACIFIC ROLLING MILL AND FORGE CO.,** Post Office, San Francisco, Cal., will receive prompt attention. The highest price paid for Scrap Iron. 9v14 3m 9p

DR. FONDA'S San Francisco Eye Infirmary.

Permanently established for the treatment of all diseases of the Eye. Dr. F. was for seventeen years principal of the Lafayette (Ind.) Eye Infirmary. F. W. Fonda, M. D., Surgeon in Charge. Office, 402 Montgomery street, opposite Well, Fargo & Co's. 4v15 1y9p

AGENTS WANTED.

ENERGETIC MEN OR WOMEN CAN MAKE MONEY in canvassing for our **NEW BOOKS AND ENGRAVINGS.** One Agent reports thirty three orders for one Book in three days. Address, **PACIFIC PUBLISHING COMPANY, 4v15qr9p** 305 Montgomery street, San Francisco, Cal.



Established in 1849--Corner First and Mission streets, San Francisco.

HAVING INCREASED OUR FACILITIES IN EVERY DEPARTMENT, WE ARE NOW prepared at the shortest notice and at the most reasonable rates, to furnish all kinds and description of Machinery, including Steam Engines, Quartz Mills, Mining Pumps of all kinds, Hoisting Gear, Gas Work, Laundry Machinery, Architectural and Ornamental Castings, Sugar Mills, Saw and Flour Mills, Water Wheels of all kinds, Hydraulic Hay, Bag, screw and Drop Presses, Coaling Machinery, Pile Drivers, Bark and Mill Mills, and all kinds of Castings.

ENGINES.—Marine Engines, Oscillating and Beam; Stern and Side Wheel Boats, Locomotives, Stationary Engines, Horizontal Upright, Oscillating and Beam, from six to fifty inches diameter. Also, Scott & Eckart's Adjustable Cut-off Regulator—best in use; W. H. Eckart's Balance Valve for Stationary Engines; Woodward's Patent Steam Pump and Fire Engine.

BOILERS.—Locomotive, Flat, Tubular, Upright, Cylinder and Cornish, and every variety of Boiler Work. All sizes of tubes and pipes for pumps.

PUMPS.—The Excelsior double-acting Force Pumps are manufactured by us. These very superior Pumps are warranted the best, and are fast replacing all other Force Pumps.

AMALGAMATING MACHINERY.—Wheeler & Randall's improved Tractory Curved Pan, Zeller's improved flat bottom pan, Felder's pan, Vetch's tubs, Prater's concentrators, Waklee's pans, Beers' pan, German Barrels, Arastra Gearing, Chile Mills, Settlers of all descriptions, Retorts of all sizes and shapes, for Silver and Gold, Portable Stamp Mills, Straight Batteries, for wood or iron frames, Dry Crushing Batteries, or machines with the latest improvements, every variety of Stamps, Mortars, Cams, Pans and Tubs. BLAKE'S PATENT QUARTZ CRUSHERS, of all sizes.

OIL BORING TOOLS AND MACHINERY.—Of the latest and most approved construction, made from drawings lately made by Prof. Blake at the oil wells in Pennsylvania. We have the facilities for working gold and silver quartz and other ores, to test their value, by the hundred weight or ton.

Russia Iron Screens, of all degrees of fineness and of all qualities of Iron. All work done in the best manner at the lowest cash prices.

H. J. BOOTH & CO. 2412

ORIGIN OF A NEW INDUSTRY.—Some time since a hatter in Brooklyn, N. Y., for the fun of the thing, promised his wife that he would make her a skirt—such as was never before known. He took some felt, and adopting the beating process by which felt hats are made, he streaked the material over a frame and beat it in successive layers till a thick, full sized seamless skirt was made impervious to rain or damp, warm and not heavy; it was regarded as a wonder by the ladies of New York. More were demanded. They became the rage, and an immense factory has been opened, 100 hands employed, and yet the demand cannot be supplied.

THERE are nine establishments in Massachusetts for the manufacture of spool cotton. The value of stock used for the year ending the 1st of May, 1864, was \$865,538; value of cotton made, \$1,336,098; capital invested, \$990,500; hands employed, 867.

OYSTERS are said to be so tenacious of life as to continue their heart-beatings for half an hour after they have become engulfed in the human stomach.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—but are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.
Hamburg, by Hamburg mail—2 cents each.
Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.
Lunenburg, by Bremen mail—3 cents each.
Lunenburg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.
Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.
Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—4 cents each.
Italy, by Bremen or Hamburg—3 cents each.
Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mails, via Trieste—3 cents each, and 2 cents per ½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.
Hamburg, by Hamburg mail—1 cent per ounce.
Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.
Lunenburg, by Bremen mail—1½ cent per ounce.
Lunenburg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.
Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.
Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per ½ ounce.
Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per ½ ounce.
Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail, via Trieste—1½ cent per ounce, and 2 cents per ½ ounce.

These charges are in each case in full to destination, combining rates between the United States and Bremen or Hamburg, and the rate beyond Bremen and Hamburg to points of delivery.

CALIFORNIA TOOL AND FILE FACTORY.
Blacksmith and Machine Shop.
No. 17 Fremont street, between Market and Mission, S. F.
Job Grinding and Polishing done at shortest notice.
Special premium awarded at the last State Fair, Sacramento.
4v15-4y

LINCOLN IRON WORKS,
No. 51 Beale st., bet. Market and Mission.
D. & W. FOURNESS, Prop'rs.
STEAM ENGINES,
Flour and Sawmills, and MACHINERY of all descriptions made and repaired at shortest notice.
Particular attention paid to repairing Reynold's Cut-off
5v12-4y

Machinists and Foundries.

PALMER, KNOX & CO.,
Golden State Iron Works,
Nos. 19, 21, 23 and 25 First Street,
SAN FRANCISCO.

MANUFACTURE ALL KINDS OF
MACHINERY,
TEAM ENGINES AND QUARTZ MILLS
DUNBAR'S IMPROVED
Self-Adjusting Piston Packing,
Requires no springs or screws; is always steam tight; without excessive friction, and never gets slack or leaky.

WHEELER & RANDALL'S
NEW GRINDER AND AMALGAMATOR
HEPBURN & PETERSON'S
AMALGAMATOR AND SEPARATOR,
Knox's Amalgamators,
WITH PALMER'S PATENT STEAM CHEST,
Superior for working either GOLD OR SILVER ORES, and is the only Amalgamator that has stood the test of seven years' continual working.
Genuine White Iron Stamp Shoes and Dies

Having been engaged for the past ten years in quarantining, and being conversant with all the improvements, either in Mining or Milling, we are prepared to furnish, at the shortest notice, the most perfect machinery for reducing ores, or saving either gold or silver.
13v10qy-1f

WILLAMETTE IRON WORKS,
PORTLAND, OREGON.

Steam Engines, Boilers,
SAW AND CRIST MILLS,
MINING MACHINERY, WROUGHT IRON SHUTTER WORK, and BLACKSMITHING IN GENERAL.
Corner North-Front and E streets,
13v13-1y One block north of Couch's Wharf.

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NELSON,
MANUFACTURERS OF
CROSS' PATENT BOILER FEEDER,
STEAM ENGINES, BOILERS,
And all kinds of Mining Machinery.
Also, Hay and Wine Presses made and repaired with neatness, durability and dispatch.
Dunbar's Patent Self-Adjusting Steam Piston Packing, for new and old Cylinders, manufactured to order.
Front Street, between N and O streets,
14v11 SACRAMENTO CITY

I. H. SMALL,
MACHINE SHOP,
BUILDER OF
Steam Engines, Sawmills, Mining Machinery, Saw Arbors, Wood Cutting Machinery, and Wood Planers.
Repairing of all kinds done with promptness and dispatch. Gears of all kinds cut at short notice, corner of Market and Beale St. San Francisco 6v15-3m

GLOBE Foundry and Machine Shop,
STOCKTON, CAL.

KEEP, BLAKE & CO.,
MANUFACTURERS OF
Quartz, Saw and Grist Mill Irons, Steam Engines, Horse Powers,
Mining and Irrigating Pumps, Car Wheels, Derrick Irons, House Fronts, Iron Fencing, Balcony Railings, etc., at San Francisco prices. Orders solicited and promptly executed.
13v13-1y

GEORGE T. PRACY, MACHINE WORKS,
Nos 109 and 111 Mission street, between Main and Spear, SAN FRANCISCO.

STEAM ENGINE, FLOUR AND SAW MILL
And Quartz Machinery, Printing Presses,
—AND—
MACHINERY OF EVERY DESCRIPTION MADE AND REPAIRED.
Special attention paid to Repairing. 4y-3

SAN FRANCISCO Foundry and Machine Works.

N. E. Cor. Fremont and Mission streets, Manufacturers of
Marine and Stationary Engines
Quartz Machinery, Saw, Flour and Sugar Mills, Mining Pumps, Hoisting Gear, Agricultural Implements, etc.
—ALSO—
Wine, Cider, Cotton and Tobacco Presses of the latest Improved Patterns

STEAM ENGINES AND BOILERS,
Of all sizes, constantly on hand; Quartz Mill Shoes and Dies warranted to be made of the best white iron.
Dunbar's Improved Self-Adjusting Piston Packing, requires no springs or screws; is always steam-tight; without excessive friction, and never gets slack or leaky.
MACHINERY, OF ALL DESCRIPTIONS
Bought, sold, or exchanged. Bolt Cutting and Castings at the lowest market rates.
6v11-1y **DEVORE, DINSMORE & CO**

LEWIS COFFEY, J. S. LONDON,
LEWIS COFFEY & RISON,
Steam Boiler & Sheet Iron Works.
THE only exclusively Boiler Making establishment on the Pacific Coast owned and conducted by Practical Boiler Makers. All orders for New Work and the repairing of Old Work, executed as ordered, and warranted as to quality.
Old Stand, corner of Bush and Market streets, opposite Oriental Hotel, San Francisco.

CALIFORNIA BRASS FOUNDRY.
No. 125 First street, opposite Minna, SAN FRANCISCO.
ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and Cones of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.
PRICES MODERATE. 23
V. KINGWELL 9v13-1y J. H. WEED.

FULTON Foundry and Iron Works.

HINCKLEY & CO.,
MANUFACTURERS OF
STEAM ENGINES,
Quartz, Flour and Saw Mills,
Moore's Grinder and Amalgamator, Brodie's Improved Crusher, Mining Pumps, Amalgamators, and all kinds of Machinery.
N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-4y

NEPTUNE IRON WORKS,
Corner of Mission and Fremont Streets, SAN FRANCISCO.

MARINE, Locomotive, and all kinds of HIGH PRESSURE Steam Boilers
MADE.
All Boilers guaranteed and tested by U. S. Boiler Inspector before sent out of the Shop, at Shop expense.
All kinds of Sheet Iron and Water Pipe, Coal Oil Stills, Wrought Iron Worms, etc., etc. Manufactured to Order.
Old Boilers Repaired
D. CAMERON.
6v12-1y

JOHN LOCHHEAD'S Steam Engine Works,
Beale street, near Mission, San Francisco.

STEAM ENGINES OF EVERY DESCRIPTION BUILT
to order—Marine, Stationary, or Locomotive.
HOISTING AND PUMPING ENGINES.
PORTABLE ENGINES, OF ALL SIZES,
DONKEY PUMPS, Etc., Etc., Etc.
The attention of the parties engaged in shipping or inland navigation is called to them.

Superior Workmanship
of Mr. LOCHHEAD, who has been in the business in San Francisco for the last fourteen years, and enjoys the reputation of having built ONE HUNDRED AND SEVENTEEN STEAM ENGINES.
Screw Propellers of all kinds, and Steam Boat Machinery generally, made to order, and warranted to give perfect satisfaction in every particular.
25v12-3m

SOUTH BEACH IRON WORKS,
Near corner of King and Third streets, San Francisco.
MARINE ENGINES,
AND ALL KINDS OF
MACHINERY FORGING.
All kinds of Ship-smithing and Mill work manufactured to order. Jobbing of every description promptly attended to. All work done guaranteed.
13v14-1y
ELECTROTYPING CUTS, ENGRAVINGS, Etc.—Our Job Printing Office is abundantly supplied with elegant engravings, ornaments, and other embellishments to suit the various branches of industry in this State.

SCIENTIFIC NONSENSE.—It is said that Andrew Jackson Davis, the well-known spiritualist, will shortly publish a new book entitled "Stellar Key to the Summer Land," which Mr. Davis claims contains "Scientific and Philosophical evidences of the existence of an inhabitable Sphere or Zone among the Suns and Planets of Space."

The whole of the sewage system of Woolwich is to be connected, for ventilating purposes, with the tall shaft of the steam factory department, and remarkable sanitary results are expected.

The Paris Exposition gives 16,000 medals, and as each will be specially struck with the name of the recipient, they will not all be ready before March next.

A GENTLEMAN of N. Y. has devised a method of mutilating postage stamps, which he thinks will be effectual. Only gum half the stamp, he says, and let the clerks in the post office tear off the other half.

Hops.—The hop product of the United States last year is estimated at 20,000,000 pounds, of which 7,000,000 are credited to Wisconsin.

National Mineral Land Law, Instructions. Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address Dewey & Co., office Mining and Scientific Press, San Francisco.

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20.....10 cents.
Over \$20 and not exceeding \$50.....25 cents.
No fractions of cents to be introduced in an Order.
United States Treasury Notes, of National Bank Notes only received or paid.

To send over \$50, additional Orders must be obtained.
Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out:
No. Amount Date, 1867

MONEY ORDER.

Required for the sum of \$.... Payable at
State of Payable to Residing at
Residing at State of Sent by
Residing at State of
EXTERIOR IN REGISTER.

The applicant must, in all cases, write his own given name and surname in full, and when the given name of the payee is known, it should be so stated; otherwise initials may be used. The given names of married women must be stated, and not those of their husbands. For example: Mrs. Mary Brown must not be described as Mrs. William Brown.

Names of parties and places, and the sums, to be written in the plainest possible manner.
As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.

Office.	County.	Office.	County.
Auburn.....	Placer.	San Francisco.....	San Francisco.
Bear River.....	Sutro.	San Jose.....	San Jose.
Bear River.....	Sutro.	San Jose.....	San Jose.
Campanville.....	Yuba.	San Jose.....	San Jose.
Chico.....	Butte.	San Jose.....	San Jose.
Columbia.....	Butte.	San Jose.....	San Jose.
Colusa.....	Colusa.	San Jose.....	San Jose.
Dowdville.....	Sierra.	San Jose.....	San Jose.
Dutch Flat.....	Placer.	San Jose.....	San Jose.
Emery.....	Butte.	San Jose.....	San Jose.
Folsom.....	Sacramento.	San Jose.....	San Jose.
Forest Hill.....	Placer.	San Jose.....	San Jose.
Georgetown.....	El Dorado.	San Jose.....	San Jose.
Gibsonville.....	Sierra.	San Jose.....	San Jose.
Gilroy.....	San Jose.	San Jose.....	San Jose.
Grass Valley.....	Nevada.	San Jose.....	San Jose.
Headburg.....	Sonoma.	San Jose.....	San Jose.
Iron Valley.....	Amador.	San Jose.....	San Jose.
Jackson.....	Yuba.	San Jose.....	San Jose.
La Porte.....	Plumas.	San Jose.....	San Jose.
Los Angeles.....	Los Angeles.	San Jose.....	San Jose.
Mariposa.....	Mariposa.	San Jose.....	San Jose.
Marquette.....	Alpine.	San Jose.....	San Jose.
Marysville.....	Yuba.	San Jose.....	San Jose.
Matine.....	Contra Costa.	San Jose.....	San Jose.
Mokelumne Hill.....	Calaveras.	San Jose.....	San Jose.
Monterey.....	Monterey.	San Jose.....	San Jose.

NEVADA.

Office.	County.	Office.	County.
Virginia City.....	Storey.	Austin.....	Lander.
Carson.....	Ormsby.	Anaconda.....	Esmeralda.

OREGON.

Office.	County.	Office.	County.
Albany.....	Lincoln.	La Grange.....	Union.
Canyon City.....	Grant.	Oregon City.....	Clackamas.
Corvallis.....	Benton.	Portland.....	Multnomah.
Dallas.....	Polk.	Roseburg.....	Douglas.
Engene City.....	Lane.	Salem.....	Marion.
Jacksonville.....	Jackson.	The Dalles.....	Wasco.
Lafayette.....	Yam Hill.	Umatilla.....	Umatilla.

IDAHO TERRITORY.

Office.	County.	Office.	County.
Boise City.....	Ada.	Ruby City.....	Owyhee.
Idaho City.....	Boise.	Lewiston.....	Ney Perce.

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena.....	Helena.	Virginia City.....	Madison.

WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia.....	Thurston.	Vancouver.....	Clark.
Steinboon City.....	Pierce.	Walla-Walla.....	Walla-Walla.

Stair Work of all kinds.
MADE TO ORDER
And Shipped to all parts of the Coast.



Newel Posts and Balusters
CONSTANTLY
on hand and for sale.

A. T. DEWEY. C. W. M. SMITH. W. E. L. EWER.

THE BEST IN AMERICA.

The Mining and Scientific Press,

Is the Largest and Best MINING AND MECHANICAL Newspaper issued in the United States.

DEWEY & CO.,

Patent Agents, Publishers, Book and Job Printers, 505 Chay Street, San Francisco.

THE MINING AND SCIENTIFIC PRESS is published every Saturday. Each issue comprises sixteen pages (64 columns), and furnishes more valuable reading matter than any other weekly journal in California.

To the practical mechanic, metallurgist, prospector, millman, mine hauler or worker, it is worth many times its subscription price. Its files contain a record of the improvements in mining machinery, the progress and development of the mines, and all new methods and processes for working and

SAVING PRECIOUS METALS.

All progressive information, in fact, transpiring with the times—which cannot be obtained from books.

The MINING AND SCIENTIFIC PRESS is now in its FIFTEENTH VOLUME, and enjoys a large circulation. It received the following hearty endorsement of the California Miners' State Convention, held at Sacramento, January 17th, 1866:

RESOLVED, That we regard a mining paper or journal of great importance to the mining interests of California, and recommend the MINING AND SCIENTIFIC PRESS, of San Francisco, to the consideration and support of the miners of the Pacific coast.

Terms of Subscription.—One year, \$5; six months, \$3. In advance. Send for sample copies. Remittances may be made by mail at our risk, if parties sending will register their letters, or send money order.

As an advertising medium throughout the whole Pacific States and Territories, the Press is unsurpassed. Rates moderate.

SPECIMEN NUMBERS of the Press and Patent Circulars, sent free.

DEWEY & CO.,
San Francisco.

THE GOLDEN ERA.

Founded in 1851, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family Journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

THE GOLDEN ERA

Is the most universally popular of all the Weekly journals. It presents forty-eight columns, containing the greatest possible variety of Valuable and Entertaining, Original and Selected matter. It is a welcome guest in Cottage and Cabin; the favorite at the fireside in city and country; the most useful, agreeable and altogether desirable publication for California readers and their kindred and friends in the Atlantic States, Europe and elsewhere. Every household in the mountains and valleys, the cities, towns and mining camps of California, and throughout the Pacific States and Territories, should receive and welcome THE GOLDEN ERA as a regular weekly visitor. Inspired with the genius of the age, it is progressive, and aims not so much at distinction as a newspaper, as at honorable success in its capacity of a great Moralizing and Improving Influence. Exercising a positive power for good, and wielding a permanent influence, many able and eminent writers choose its columns as a means of communicating with the public. No effort will be spared to make it a thoroughly California newspaper, and worthy of the support of all classes of our citizens.

Rates of Subscription:

(variably in advance.)

One year.....	\$5.00	Six months.....	\$3.00
Three months.....	\$2.00		

TERMS TO CLUBS:

Three copies one year.....	\$12.00
Five copies one year.....	18.00
Ten copies one year.....	30.00

An extra copy free for one year to the person sending a club of ten subscribers.
Send money to our office in registered letter, or by Express, Address,

BROOKS & CAMP,
San Francisco.

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

ITALIAN MANUFACTORY
FIRST PREMIUM 1857 1858 1864 1865
OF
MACCARONI, VERMICELLI,
PASTE & FARINA.
(706 Sansome St. 706)
SAN FRANCISCO.
BRIGNARDELLO, MACCHIAVELLO & CO.
12v14-6m

PACIFIC POWDER MILL

COMPANY'S

BLASTING POWDER!

MANUFACTURED

IN MARIN COUNTY,

CALIFORNIA.

FOR SALE BY

HAYWARD & COLEMAN,

AGENTS,

414 Front Street, San Francisco.
3v14-1m

BEAN'S

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—OF—

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CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

COMPILED BY EDWIN F. BEAN.

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13v15t

Mining Secretary.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST five years as Secretary of various mining companies, feels fully competent to serve in that capacity. Any parties wishing to secure the services of a Secretary can be accommodated on reasonable terms. Information given, and all necessary papers correctly made out. Having had a long experience in the purchasing of goods and machinery for miners, parties in the mines will find it to their advantage, where purchases agents are employed, to send their orders to the undersigned.
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ESTABLISHED [MAY, 1860.]
VOLUME SIXTEEN

Mining and Scientific Press,
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When the 10th, 19th and 30th fall on Sunday, they will

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Steamer leaving San Francisco on the 10th touches at

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Departures of 19th or 19th connect with French Trans-
 Atlantic Co.'s steamer for St. Nazaire, and English steamer
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 steamer for Southampton and South America, and Australia,
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New Mining Advertisements.

Die Padre Gold and Silver Mining Company,
 Alamos, Mexico.

Notice is hereby given, that at a meeting of the Board of
 Trustees of said Company, held on the tenth day of Janu-
 ary, 1868, an assessment of five dollars (\$5) per share was
 levied upon the capital stock of said Company, payable
 immediately in United States gold and silver coin, to the
 Secretary at his office, corner Broadway and Battery
 streets, San Francisco, Cal.

Any stock upon which said assessment shall remain un-
 paid on the eleventh day of February, 1868, shall be de-
 deemed delinquent, and will be duly advertised for sale at
 public auction, and unless payment shall be made before, will
 be sold on Thursday, the fifth day of March, 1868, to pay
 the delinquent assessment, together with costs of adver-
 tising and expenses of sale. By order of the Board of
 Trustees.

E. C. McCOMB, Secretary.
 Office, corner Broadway and Battery streets. jan11

Lady Bell Copper Mining Company, Low Di-
vide Mining District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of
 Trustees of said Company, held on the eighth day of Janu-
 ary, 1868, an assessment of fifteen cents per share was
 levied upon the capital stock of said Company, payable
 immediately, in United States gold and silver coin, to the
 Secretary, or to J. K. Johnson, at Crescent City.

Any stock upon which said assessment shall remain unpaid
 on the tenth (10th) day of February, 1868, shall be de-
 deemed delinquent, and will be duly advertised for sale at public
 auction, and unless payment shall be made before, will be
 sold on Monday, the second day of March, 1868, to pay the
 delinquent assessment, together with costs of advertising
 and expenses of sale. By order of the Board of Trustees.

B. P. WILKINS, Secretary.
 Office, 618 Market street, San Francisco, Cal. jan11

Mount Tenabo Silver Mining Company.—Lo-
cation of Works: Cortez District, Lander County, Ne-
vada.

Notice is hereby given, that at a meeting of the Board of
 Trustees of said Company, held on the fifth day of January,
 1868, an assessment of two dollars and fifty cents (\$2.50) per
 share was levied upon the capital stock of said Company,
 payable immediately, in United States gold and silver
 coin, to the Secretary, 426 Montgomery street, San Fran-
 cisco, California.

Any stock upon which said assessment shall remain un-
 paid on the twelfth day of February, 1868, shall be de-
 deemed delinquent, and will be duly advertised for sale at public
 auction, and unless payment shall be made before, will be
 sold on Thursday, the twelfth day of March, 1868, to pay the
 delinquent assessment, together with costs of advertising
 and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
 Office 426 Montgomery street, San Francisco. jan11

P. S.—An allowance on the above assessment of three per
cent. will be made on all payments prior to the 3rd inst.
By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Nuestra Señora de Guadalupe Silver Mining
Company.—Location of Works: Tayoltita, San Dimas
District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of
 Trustees of said Company, held on the third (3d) day of
 January, 1868, an assessment (No. 30) of one dollar (\$1) per
 share was levied upon the assessable capital stock of
 said Company, payable immediately, in United States
 gold and silver coin, to the Secretary, E. J. Pezzarini,
 at the office, No. 210 Post street, or to the Treasurer, A. Him-
 melmann, at his office, No. 637 Washington street, San
 Francisco.

Any stock upon which said assessment shall remain un-
 paid on the tenth day of February, 1868, shall be de-
 deemed delinquent, and will be duly advertised for sale at public
 auction, and unless payment shall be made before, will be
 sold on Tuesday, the third day of March, 1868, to pay the
 delinquent assessment, together with costs of advertising
 and expenses of sale. By order of the Board of Trustees.

E. J. PEZZARINI, Secretary.
 Office, No. 210 Post street, San Francisco, Cal. jan11

San Francisco and Castle Dome Mining Com-
pany. Location of Works: Castle Dome County, Arizona
Territory.

Notice.—There are delinquent, upon the following de-
 scribed stock, on account of assessment levied on the twen-
 tieth day of November, 1867, the several amounts set opposite
 the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
R. W. Washburn	55, 56, 57	25 100-ea	25 00
R. W. Washburn	59	600	60 00
Jas Devoe, Sr.	34, 35, 36, 37	100-ea	40 00
Jas Devoe, Sr.	129	34	3 40
L. E. Morgan	149, 150, 151, 152	5-ea	2 50
L. E. Morgan	153, 154	10-ea	2 00
L. E. Morgan	155	15	1 50
L. E. Morgan	156	25	2 50
L. E. Morgan	157	25	2 50
L. E. Morgan	158	600	60 00
L. E. Morgan	not issued	50	5 00
John Ferguson	172, 173, 174, 175	100-ea	100 00
C. M. Hitchcock	137, 138, 139, 140	100-ea	100 00
W. M. Knowlton	141, 142, 143, 144, 145	100-ea	100 00
W. M. Knowlton	146	500	50 00
W. M. Knowlton	147	15	1 50
Estate of Chas Greenley	25	6	60
Mrs Annie Devoe	26	60	6 00
Estate of J. C. Beideman	168	150	15 00
Robert Apple	161 and 162	250-ea	50 00
Egbert Judson	not issued	500	50 00
N. S. Knowlton	153	400	40 00
N. S. Knowlton	154	50	5 00

And in accordance with law, and an order of the Board

of Trustees, made on the twentieth day of November, 1867,

so many shares of each parcel of said stock as may be ne-
 cessary, will be sold at public auction, at the salesroom of
 Maurice Dore & Co., No. 327 Montgomery street, San Fran-
 cisco, Cal., on Monday, the twenty-seventh day of January,
 1868, at the hour of 12 o'clock, M., of said day, to pay said
 delinquent assessment thereon, together with costs of ad-
 vertising and expenses of sale.

A. R. SMITH, Secretary.

Office, Room No. 16 Stevenson's Block, Cor. Montgomery
 and California streets, San Francisco. jan11

Ventana Gold and Silver Mining Company.—
Location of Works: Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of
 Trustees of said Company, held on the eighth day of Janu-
 ary, 1868, an assessment of one dollar and fifty cents (\$1.50)
 per share was levied upon each and every share of assess-
 able stock of the capital stock of said Company, payable
 forthwith, in United States gold coin, to the Secretary,
 southwest corner S.ewart and Folsom streets, San Fran-
 cisco, Cal.

Any stock upon which said assessment shall remain un-
 paid on the tenth day of February, 1868

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have been constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular way between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY,

San Francisco.

E. O. HUNT,

Manufacturer of

Windmills, Horse-Powers
Pumps, Pumping
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HUNT'S ADJUSTABLE WIND MILLS to have all the sails arranged as turn edgewise to the wind when the mill is stopped. The sails can be set at any angle to suit the force of the wind, while the mill is running, by means of the brake lever at the foot of the mill, by an operator.

HUNT'S SELF-REGULATING MILL is strong, durable and cheap. It is provided with means for stopping, in the most violent winds. This mill is well known throughout the State.

Tread Horse-Powers, Swap Horse-Powers, Pumps in great variety, Single and Double-Acting. Frames and Gearing for running pumps, from steam or other power, constantly on hand and built to order. Water Tanks built to order.

No. 28 Second St., and 108 and 110 Jessie St. San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works.

San Francisco, Aug. 29, 1867.

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WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND Placer Miners, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this little machine, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address

Dr. J. B. BEERS, San Francisco,
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Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,
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PATTINSON'S
HURDY-GURDY WATER-WHEEL.

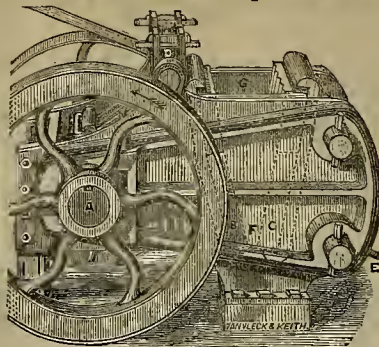
The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

THOMAS PATTINSON

Changing the Address.—No charge is made for changing the address of this paper. To give all necessary information, write us plainly as follows: "Change address of the Mining and Scientific Press from Mr. ... at ... P. O. ... County, ... State, to Mr. ... at ... P. O. ... County, ... State. ... 186-"

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the crushers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price \$600

No. 2.—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour—price 850

No. 3.—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour—price 1,300

EXPLANATION OF THE ABOVE CRUSHER.

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is held by a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaw, and the dotted line represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Raywilde Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Raywilde Ranch" Mine, in Tuolumne County:

Raywilde Ranch, Tuolumne Co., Sept. 28, 1866.
JAMES BRODIE, Esq., San Francisco, Dear Sir:—I beg to please to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Raywilde Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
Supt. Raywilde Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the future, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1865.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or CHARLES RADCLIFF, Express Building, 402 Montgomery street, San Francisco.

THE CELEBRATED
Self Generating Portable
Gas Lamp.

This extraordinary Lamp produces its own gas by the vaporization of Petroleum, Naphtha, or Benzine. It can be either smoked or smelt, and burns with a pure white flame, equal in intensity to an ordinary gas burner, and at an expense of only one-third of the cost per hour only, according to the quantity of light required. It is peculiarly adapted for mining purposes, also for stores, factories, billiard rooms, and in fact, for all purposes where regular gas is not available, and for which it is an admirable substitute. As an outdoor light it stands unrivaled, burning with undiminished brilliancy in a strong wind.



Directions for Use.

Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn off the tap, and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained till the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to crush the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vice and the burner screwed off. The burnt cotton must then be withdrawn, and a fresh piece of stout cotton rope one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

Manufactured solely by JOHN J. HUCKS, original proprietor, Factory, North Beach, San Francisco; and for sale by his agents in every city and town throughout the State. 18v13m-8

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Manners of Address.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools.

To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

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After as careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—Wm. H. Hall.

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It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text-books.—James Deiman.

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You have brought the results of a profound analysis, and made them available, in a practical form.—I. H. Brydson.

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and as advocates of the forum.—John Curry.

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This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—Alta California.

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—S. F. Times

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Its design is to show that ideas can be so arranged as to increase their power; in short, to teach the mechanism of composition, eloquence and oratory. A desideratum long felt is supplied.—S. F. Examiner.

This is an anecdote in which the occasions are rapidly multiplying, when educated men, and women, too, are called upon to express their views in writing, either for public or private inspection and criticism.—Stockton Independent.

The most eminent educators in California give it their hearty approval, and we concur.—Marysville Appeal.

Not only one of the best of its kind, but what is still better, one of the briefest. It contains 166 pages.—Virginia Enterprise.

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DISTRESS IN NEW YORK.—The New York

World of Dec. 10th, says: Of the 28,000 artisans employed in the jewelry business, 40 per cent. are out of employ; carpenter's wages have been reduced from \$3.50 to \$2.50 a day, and only one-half of the journeymen can find employment; of hatmakers, there are 400 who can get work but one day in six; of the 20,000 tailors in the city, one-quarter are unemployed, the quantity of work for them is 30 per cent. less than that assigned them at this time last year, and their wages have been reduced by 33 1/2 per cent.; the ironworkers say that their business has not been in twenty years so dull as it is now; at least, 1,000 shipwrights are out of employ, and from one end of the East river to the other but five vessels are building, of which two are steamboats, two are ferryboats, and one is a sailing vessel; and, to close this sad list, it is estimated that 3,000 servant girls are seeking places, but find none. Such facts as these do not need comment. Attribute them to whatever cause one may, the statement remains that thousands of men and women in the metropolis who depend for a living upon daily labor can find no employment; they are willing, nay, anxious to work, but there is no work for them to do. How they are to survive the winter they dread to forecast. Want stares them in the face. Relief is too far to be within sight. Yet they must live, and it is not improbable that many of them may be objects of charity ere the spring returns. Probably few of our citizens are aware of the state of affairs thus presented; but unless a change for the better takes place (of which there is no immediate prospect) New York will see as much distress as it did in the winter of 1857-8, when processions of men, women and children were no uncommon thing.

THE EMPIRE OF THE POPE.—What is this Empire of the Pope which is just now the theme of universal contention? We learn from some statistics presented to the International Statistical Congress recently held in Florence, that "The area of the papal states is at present 11,000 kilometres, the length of coast 550 kilometers, 50,000 hectares of land being marshy and uncultivated. Two-fifths of the buildings and a third of the land in Rome belong to the Church. Since 1847 the lay population has increased from 176,000 to 215,000, and the clerical population has doubled. There has been no progress in the industry of the country in the last forty years. In 1813 there were 39 wool factories, which still exist. The proportion of soldiers to the population is 23 in 1,000, which is more than in Prussia, and accounts for the enormous deficit in the papal budget."

AN EMINENT IRON MASTER DEAD.—Wm.

Burden, the eminent iron master of Troy, N. Y., died on the 6th ult. He was of the firm of Burden & Sons. The firm now consists of two brothers of the deceased and the father, who, at last accounts, was lying seriously ill. Their works cover acres of ground, and whole squares of buildings. The iron they make is said to be superior to English, and nearly equal to the best Swedish.

FOR THE SCIENTIFIC.—It is said, on what authority we know not, that a reward of \$10,000 is offered for the discovery of a process to soften mica.

Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thanks for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness:

GEORGETOWN, January 22, '67.
MESSRS. DEWEY & CO.—Sirs: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Laters Patent" on my application through you for an "Improved Machine for Washing Ores."
It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf.
Very truly yours,
A. A. WOODSIDE.

MINING AND SCIENTIFIC PRESS.—This valuable journal has closed its fourteenth volume and entered upon its fifteenth. It is a publication that should have a wide circulation among our mining and mechanical population. It publishes, in addition to the most complete summary of mining news, a vast amount of information on the application of science to mining and the mechanic arts. It contains notices and descriptions of all new mining processes, and all machines intended to facilitate the extraction of the precious metal from ore and rock with which it is blended. It also chronicles all new inventions, and, in most instances, contains drawings to illustrate them. To miners and mechanics it is a paper of incalculable value, and should be in the hands of all who desire to keep themselves posted in the progress being made in these departments.—Tribune Union.

Postage.—The postage on the MINING AND SCIENTIFIC Press to any portion of the United States is twenty cents per annum, or five cents per quarter, payable in advance at the Post Office delivering the paper. Postage free in the city and county. Foreign postage (with few exceptions) two cents per copy, prepaid. To Bremen and the German States (marked via Bremen and Hamburg line), three cents per copy, prepaid. Single copies to any address in the United States, two cents.

A Hint.—Brickmakers may find an interesting hint in a recent number of Harper's Weekly, which advises them to have a stamp in every brick mold, giving the name, date, and locality of manufacture, not only as a useful advertisement for them and their business, but likewise as an assistance to futuro investigators and historians. Such trade-marks were common among the Roman, Egyptian and other ancient brick-makers, and have rendered valuable aid to historical writers of modern times in verifying dates, and filling up gaps in the annals of the past.

PEACHES.—A Florida fruit grower says the report current that peaches will not grow in Florida—or that, in going south, where oranges commence peaches end—is not true, as no State in the Union will produce either peaches or oranges to greater perfection than Florida.

SULPHUR FOR DIPHTHERIA.—A Scotch doctor has published a tract announcing that he has discovered in sulphur a sovereign remedy for diphtheria, and all diseases of minute fungus growth.

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SAN FRANCISCO, SATURDAY, JANUARY 18, 1868.

VOLUME XVI.
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Petroleum For Steam Fuel.

The consumption of fuel in the furnaces of land and marine engine boilers—the best class of fuel to be used, and the best possible manner of consuming it, so as to utilize the highest percentage of heat evolved from its consumption, has become one of the most important, if not indeed the most important mechanical and commercial question of the day. The supplanting of nearly all other motive power by steam could never have been accomplished, to anything like even its present extent, had it not been for the introduction of coal to take the place of wood. In England the great fear now is the exhaustion of the coal fields. In this country the chief difficulties are the high price of coal, and the necessity for a still more condensed fuel to enable us to make, with due regard to economy, the long voyages incident to our rapidly increasing commerce on the Pacific.

IMPORTANT CONSIDERATIONS.

The United States is just now stretching forth her arms to grasp the prize, which has been the contest and ambition of nations ever since Solomon made his famous treaty with Hiram, King of Tyre—the control of the world's traffic with the Indies. To gain this end, we have long been striving to secure the entire available "water front" of the greatest ocean on the globe, we have undertaken the construction of the most gigantic railroad enterprise ever attempted, and we have established the most magnificent steamship line ever conceived by man! In each of these enterprises we are succeeding beyond the most sanguine anticipations of their original projectors, and our success thus far has challenged the admiration of the world. The skill of our engineers and naval architects, and the energy, confidence and ability of our capitalists, has proved all that the exigencies of the situation has required. The last triumph, which may perhaps be considered the greatest and most important consummation which has been attained in all the train which has thus far led us straight forward to the goal of our ambition, is the practical substitution of petroleum for coal and wood in making steam.

Experience has shown us that we had well nigh failed in the very moment of apparent victory; for we hold it as a demon-

strated fact that the successful prosecution of the long voyages between this port and the commercial centers of the East Indies, cannot be made to stand against the combined opposition, aided by frequent coaling depots which will be brought to bear against us, when, by the completion of our continental railroad, we shall be prepared to make our final determined effort to secure the world's traffic with the East. To do this, we shall need an advantage which was but little considered when we entered upon the contest—we must have a condensed fuel which will give us that room in our steamers for freight, which is secured to our European competitors by the frequent coal-

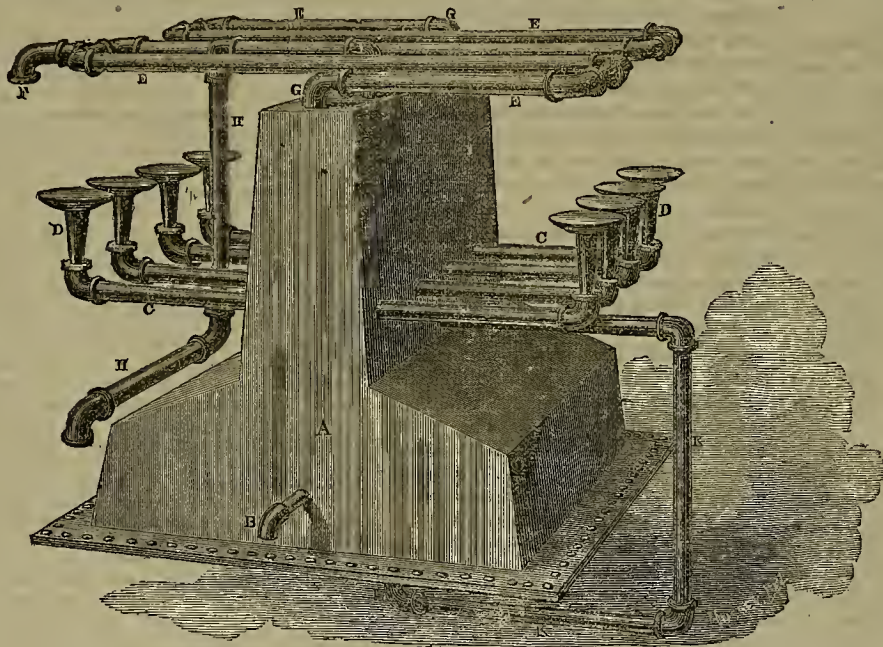
our contemporaries, with the progress which Col. Foote has made in this direction. They have also been informed that two of his agents have arrived in this city, to repeat here his New York and Boston experiments, which have attracted so largely the attention of the world during the past summer. To this end they brought out the identical apparatus which has been so long used in the experiments at the Battery in New York, and which is here shown, with all its imperfections, both in construction and wear. This apparatus has been put up, and is at work, propelling the machinery of the brass foundry and machine shop at 417 Mission street, where its practical operation has been wit-

always red hot, they serve to insure the ignition of any particles of carbon which may not ignite before reaching them. E, E, E, is a steam coil made of iron gas pipe and loosely filled with iron borings. In use it is always kept red hot by the burners beneath. Steam enters this coil at the point, F, and after passing through it, enters the retort at each end through the pipes, G, G. H is a pipe connected with a small air-pump, which forces air through it into the retort at the point, I, at a pressure of about half a pound to the square inch. K is a pipe which conveys gas from the retort to the burner, L, beneath it, where it burns and keeps the bottom of the retort at a red heat.

Perhaps the practical operation of the apparatus will be better understood by describing the manner of kindling the fire at the beginning. In starting with everything cold, a handful of shavings or kindling wood is lighted and placed beneath the retort for a few minutes, until its bottom is hot enough to vaporize the oil, when crude petroleum is permitted to run slowly from a tank (which may be placed at any distance, but above the furnace,) through the pipe, B, into the retort. Here, coming in contact with the heated bottom, it is at once vaporized, and its gases fill the retort, and, passing out through the arms, C, C, and the flutings in the stems of the burners, D, D, burn with a heavy and smoky flame.

As soon as steam is obtained in the boiler, it is allowed to enter the retort at the point, F, the red-hot coil, E, E, through which it slowly passes, and where it is either decomposed or intensely superheated. As soon as the gases from the superheated steam enter the retort, a perceptible change takes place in the appearance of the flame. The gas now burns with a very clear, hot and almost smokeless flame. In order to render the combustion still more perfect, an additional

amount of oxygen is supplied by a small air pump connected with the pipe, H, which forces the air at a steady pressure, of about half a pound to the inch, into the center of the retort, where it thoroughly mixes with the gases therein contained. The fire then burns with a clear, blue, intense flame, which is at once appreciated by all engineers and chemists. When properly at work, not a particle of smoke is produced, nor is there the least collection of carbon in the retort, arms or burners; all has undergone combustion. The quantity of steam, oil, gas and air is regulated by separate faucets, so that the fire is under complete control, and can be modified or extinguished at will. The heat evolved is intense, far exceeding, in temperature, anything which can be produced by coal or wood. The machine itself does not appear to be materially injured by the heat, while the flues of the boilers, it is thought, will last twice as long as they will with coal fires; because there is no sulphur in the oil to injure them, as is the case when coal is used. The fire can be increased or diminished, or entirely extinguished and relighted in an instant. During the whole series of two years' experiments on shore and at sea, not the slightest accident has ever occurred. The apparatus is easily managed by any man of ordinary ability.



FOOTE'S APPARATUS FOR BURNING CRUDE PETROLEUM.

ing depots which they are enabled to establish.

EXPERIMENTS IN BURNING PETROLEUM.

Ever since the discovery of petroleum, in large quantities, inventors have been active in their efforts to devise a means by which it may be substituted for coal in the generation of steam. Shaw & Lintou were the first in this country to bring prominent attention to the possibility of such a thing, and Mr. Richardson led all other experimenters in England. Since the early experiments of these gentlemen, a great number of others have undertaken the solution of the problem, all of whom have met with more or less success; but none of whom appear to have arrived at such a degree of perfection in their efforts, as have Colonel Foote, of the U. S. Navy, and Col. White, of this city. The former has been the most persistent and laborious in his experiments, and has done more than any other to demonstrate to the world the practicability and economy of the use of petroleum for making steam. Our readers have been made familiar through our own columns, and those of

nessed and examined by hundreds of our citizens—mechanics, engineers and others.

Before describing its working, however, we would call the attention of the reader to the following illustration of the device which has been engraved from a photograph of the apparatus itself. It is also similar in every respect to those which were used on board the Palos in Boston Harbor, and is the result of many hundred practical experiments, extending over a period of two years. It can be applied to any wood or coal boiler now in use, by merely removing the grate bars and placing this apparatus in their stead.

DESCRIPTION OF COL. FOOTE'S INVENTION.

A represents a cast iron retort, the bottom being of wrought iron and bolted around the edges. B is a small pipe, connected with the oil tank, and through which the crude petroleum enters the retort. Its diameter where it enters is one-eighth of an inch. C, C, C, are arms of common iron gas pipe, screwed into the sides of the retort, having on their outer ends elbows, opening upwards, into which are inserted mushroom shaped solid cast iron burners, D, D, with fluted stems. The object of these burners is to spread the flame, and as their discs are

IMPROVED CONSTRUCTION OF RETORT.

We have stated that the apparatus now in use at 417 Mission street, and illustrated herewith, was the one used in the experiments made last summer at the Battery in New York. Experience there has suggested the introduction of several important modifications in the construction of these petroleum burners. By reference to the illustration, it will be seen that the general shape of the retort is much in the form of an inverted T: thus 1. It has been found in practice, that the projection upward, from the body of the retort, is useless and inconvenient, and oftentimes removes the burners at too great a distance from the fire surface of the boilers. For these reasons the retorts now made are constructed so that in section they conform very much in shape to that of the common D retort; thus 2. The burners are made very short, and screwed directly into the upper and side walls of the retort. The coil of pipe used for superheating the steam, which is now placed directly over the retort, in that of the new construction, will be so placed as to pass around the furnace, near to the walls, thus leaving the flames to act more directly upon the fire surface of the boiler. The air and steam connections are also somewhat modified. This change in the mode of construction renders the retort more compact and less liable to injury of its parts by the intensity of its own fires. A new retort, with the above improvements and modifications, is now being made at one of the foundries in this city, which will soon be substituted for the one now in use.

CALIFORNIA PETROLEUM.

By reference again to the illustration, it will be seen that there are four burners on each side of the upright projection. The character of the Eastern petroleum required the employment of that number, and they were used at the first trial in this city. It was soon found, however, that two on each side was all that were needed—half the number required at the East. This modification is required on account of the heavy nature of the California oil, which contains such an increased amount of carbon over that obtained at the East. This peculiarity in California petroleum, while it decreases its value for the production of illuminating oils, adds greatly to its efficiency for steam fuel.

CONSIDERATIONS OF COST.

Much less value is attached to the substitution of petroleum for coal at the East than on this coast, from the fact that the relative cost of the two fuels, in proportion to the work which they are respectively able to perform, is the reverse in this State to what it is at the East. Here petroleum is cheap, and of superior quality for making steam to the Eastern product; while coal is much dearer, and, when obtained from our own mines, much poorer in quality. So great is this difference of cost, that what might be a failure at the East would be a most emphatic success here.

The anthracite coal, commonly burned by steamers on this coast, costs about \$16 a ton, and it has been estimated at the East that two barrels of Pennsylvania oil contains as much heat-producing power as a ton of anthracite. The experiments at 417 Mission street, however, have quite satisfactorily demonstrated that the greater heat-producing power of the California petroleum will here add still more, and an important percentage to the advantage of oil over coal.

CAREFUL COMPARATIVE EXPERIMENTS TO BE MADE.

So important is the question of the substitution of petroleum for coal considered here, that, we understand, the Mechanics' Institute of this city, at the suggestion of Col. Foote's agents, have determined to appoint a committee under whose especial direction a series of carefully conducted experiments will be made to definitely settle the same. Those experiments will be made with the improved apparatus now being constructed, and to which allusion has already been made.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER NINE.

EXPLANATIONS.

So far, this series has been something like what has been jocularly stated respecting the play of Hamlet, with the part of Hamlet left out; as hitherto no particular reference has been made to that method which forms the principal features of the chief caption. This apparent oversight has arisen from an omission which I did not discover until the seventh paper was undergoing revision, viz: that the title which forms the caption of these papers, only very imperfectly describes their intended scope, which was to discuss in a terse manner the various modes that have been, or are now, adopted for the reduction of gold and silver ores at different times and places, and briefly to describe their capability or incapability of adoption, more especially to the territory of this coast. It is my opinion that, taking into consideration all the circumstances associated with our present position and the general character of our ores, with those containing silver, or silver and gold, in the great bulk of cases amalgamation, somewhat analogous to the Freiberg method, will be found under existing circumstances, and for some time to come, the easiest of application, most efficient and economical.

In the preceding papers little allusion has been made to the barrel mode; as, however, roasting, and that of the same character, is common to all the modern processes that have been described, or are at all likely to be brought into actual practice, the omission is not actually of so glaring character, as may appear from a cursory inspection; especially when it is remembered that in Augustin's method of extracting silver by means of brine, either alone or supplemented in combination with chlorine, in order to effect at the same time the extraction of gold, all the prior steps have to be taken in a precisely similar manner, whether water combined with salt, or mercury, is the final agent employed to extract one or both of the precious metals from the ores.

It will hereafter be explained—and when not explained the reasons for such an opinion may, in a great degree, be gathered from the general tone and line of argument pursued—why I deem that method the most advisable under present circumstances. It is by no means wished to be inferred from the remark last made, that the method thus recommended is the one which the writer feels convinced is the best. On the contrary, he is thoroughly satisfied, and has long been so, after protracted study and many trials, that, as a general mode or modes, chemical or aqueous ones are those in which rapidity, economy and efficiency will be found to combine in the most practical manner. But here comes the important point; who is or are to introduce, or teach, the improvements just alluded to? And, when fully and practically established, where are the parties to be found capable of superintending such operations? Amalgamation, on the contrary, is so simple, whether by barrel or pan, that any sensible laboring man can, in one day's instruction, be taught what is required. If, on this coast, a really advanced and early step towards improvement in the reduction of gold and silver ores is to be made, it can only be accomplished by the institution of a metallurgic establishment on such a scale as will justify the erection of all the accessory apparatus requisite to utilize and manufacture into various pro-

ducts many of the substances comprised in such ores which are now worse than wasted, but which, on the contrary, would by this means be utilized while forming the preparatory steps for facilitating their easier and more efficient ultimate reduction.

An establishment of this character, if commenced this spring, designed by and placed under the control of a person practically acquainted with the management of extensive chemical and metallurgical works, would prove not only commercially profitable, but so enormously self-expansive, that, within three years after commencing operations, it would have obtained a world-wide reputation, both for economy and efficiency; and would be capable of turning out, within twelve months after starting, a continuous stream of well-instructed cadets, sufficiently numerous to supply practically instructed experts, not only for the growing demands of this, but of other communities.

I am afraid, however, that to most minds in California, especially those that are the most deeply engaged in mining speculations, such a result, predicted above as possible, will be deemed as constituting something like a visionary metallurgic Utopia—very desirable, but unattainable. The visionaries in this case, however, are those who deem such a state of things impossible; not those, who, like myself, know both from experience and theory that the losses now sustained of 50 per cent. on the amount of bullion benefited, may be reduced, in the greater number of cases, to below 10 per cent., and that by the introduction of very little that is now in practice and nowise new in principle, and could have been put into operation just as easily in 1860 as 1868. The parrot cry, less heard now than a few years ago, of such and such scientists having been engaged, and consulted, and accomplishing nothing, is no reply whatever to the statement just named; for I should like to be informed of the name of any one person who has been consulted on this coast who was so qualified, from an acquaintance both practical and theoretical, as to justify confidence in the soundness of his advice, or as to the probability of his being likely to introduce any serviceable improvement; or of any one, fitted for the position by the possession of such joint knowledge, having been appointed to the chief superintendence of any of the mines or metallurgic works in Nevada. If either of these circumstances has occurred, I am not acquainted with it. The evil consequence of such a state of things has long been seen by the far-sighted; and has resulted from the purblind, egotistical reliance on that kind of vigor, which, though frequently of an indiscriminating, and, consequently, often of an injurious, in place of a serviceable character, is a common characteristic of "thorough business men." Such qualifications can, however, never replace the special acquirements required on the part of a mining and metallurgic superintendent.

More than seven years ago, I publicly stated, and at the same time gave my reasons for making the statement, that men possessing these joint qualifications were so sparse that, if the world was searched, they might be enumerated, when found, on the fingers of the hand engaged in writing the sentence. More than seven years have passed since that statement was made, during which interval stockholders and the public have had the opportunity of witnessing the state of things resulting from intrusting the management of their affairs with presidents and superintendents claiming no other qualification than that of being energetic business men. How long those interested will quietly allow such serious mismanagement to continue, is only for themselves to determine. An end might at once be put to the evil, if the stockholders would only so resolve, and insist upon taking a more frequent and active interest in the management of their affairs.

AFTER-THOUGHTS.

I thought I should have ceased further digressions, and so have speedily completed this series in the order which I originally conceived. The long interpolation respecting the brine and chlorine method, which has been introduced after it was supposed by the writer that further reference thereto would not be needed, combined with a subsequent explanation which appeared to be required, placed me under the necessity of refreshing my memory on many points, by searching such authorized accounts which I possessed that related to this mode. In doing so, I became reminded of many subjects,

great and small, respecting which I had previously omitted to make allusion when detailing Augustin's and Ziervogel's methods; and for practical purposes they are highly important ones.

It has already been shown that when brine is employed for the extraction of silver, the amount of solution required is enormously large. In the searches alluded to, I was, however, very much surprised to find that by Ziervogel's method (with hot water) the quantity of liquid required was even greater; thus, according to Rivot, 216 kilograms (475 lbs.) of roasted matte by the process of Ziervogel require from four to five cubic metres (140 to 175 cubic feet) of hot water, at a temperature of 149° Fahr., in order to dissolve the sulphate of silver formed during the last roasting—or nearly double the proportionate amount of solution required when the brine method is employed.

It has already been stated, when describing the roasting operations, that whether as respects Ziervogel's or Augustin's mode, that, by a protracted roasting or exposure to too high temperature, the solubility of the resulting silver compound is very much diminished. How very greatly so in the case of sulphate of silver, as compared with the same salt when formed by the aqueous mode, may be easily understood when it is mentioned that sulphate of silver so formed, as is daily done in the refining and parting of silver from gold, is soluble in 87 parts of water. In such a case, half a ton (1000 lbs.) of hot water, if employed in leaching a ton of prepared matte or roasted ore, as the case may be, would suffice to cover such matte; and ought to be sufficient to dissolve one hundred and eighty ounces of sulphate of silver, or the equivalent of one hundred and thirty ounces of silver in the metallic state, were it not that the circumstances previously named so largely contribute towards the gradual conversion of the sulphate of silver into a very insoluble condition; as will easily be seen when it is shown that in place of 1,000 lbs. of hot water, being capable, in working operations, of leaching out one hundred and eighty ounces of sulphate of silver—worth, as metallic silver, \$220—it requires in Freiberg not less than from 85,500 to 109,375 lbs., or four to five tons, of hot water to leach out about thirty ounces of sulphate of silver, or say a little over twenty ounces of the metal, in value about \$25.

In reference, however, to the brine and chlorine method, another objectionable feature exists, one, of which, although I was aware of it previously, I had entirely overlooked the importance assumed, if the method is ever adopted on this coast.

It has already been stated that the variety of native gold and silver alloy called electrum, which was the one most adopted for the employment of chlorine, in conjunction with brine, was found more generally in Hungary and Transylvania—possibly found also in Bohemia—in all which countries salt is obtainable in great abundance and at a low price; probably as low as at the salt works in England, where it only obtains about \$1.50 per ton. Under such circumstances, the loss of four or five tons per day would not form a very serious item of expense; where, however, it costs twenty dollars, and in many cases a great deal more, the inevitable waste of any considerable proportionate quantity would be found an important matter—as will be seen by perusing the following quotation from Rivot's summing up of the general result of the lixiviating process of Augustin:

"In order to treat, in one year of 300 working days, the 2,917 tons of mattes produced by the ores mined in 1850, twenty dissolving tubs and twenty-four precipitating tubs would be required. The different manipulations require ten workmen, under the direction of a suitable foreman. The saline solution used in one day would contain twenty-six tons of salt, and the loss of salt may be estimated at one-fifth, or less, of the quantity used, say 390 tons for the whole year."

The preceding figures would give an average of ten tons of matte per day, the average loss of salt in each ton of matte so lixiviated being, according to a more detailed statement, little over one-seventh, or 0.133 of a ton, which Rivot estimates at sixteen francs, assuming salt to be worth 120 francs per ton. At the same ratio the money loss that would be sustained by lixiviating by means of salt, which would result from the waste of the latter article, would amount to \$2.66 on every ton of roasted ore so treated, assuming salt to be worth \$20 per ton. This is independent of the salt required for the chlorinating roasting.

* Rivot sets down the total cost, 71,900 francs per annum—the loss on account of salt being more than one-half, or 46,800 francs. What would such cost be in California?

Mechanical.

Prevention of Boiler Incrustation.

Messrs. Editors:—In looking over the back numbers of your valuable paper, I found an article that set me to thinking on that interesting subject, the prevention of the deposit of earthy incrustation in marine boilers.

No amount of blowing off in the usual manner will prevent it entirely; for the reason that the moment that sea-water begins to increase in density, it begins to deposit sulphate and carbonate of lime, of which the troublesome deposits principally consist. Suppose a steamship to be furnished with surface condenser and appurtenances in the usual manner, and all of her boilers, but one, to be of the most approved patterns for generating large quantities of steam, at the required pressure; then let the other boiler be so constructed as to admit of easy access for the removal of scale or deposit, and to be capable of producing about one-sixth as much steam as all the others. This last I will call the salt water boiler, and the others the fresh water boilers—the steam pipes of all the boilers to communicate freely with each other, the water line of the salt water boiler to be at all times below that in the fresh water boilers, so that it can receive a continuous feed by gravitation, through a pipe (which I shall call the communication pipe) connecting their water spaces, and regulated by a cock at the pleasure of the engineer. All the fresh water from the condenser is forced into the fresh water boilers. As the condensers always leak, this water will be increased in quantity, and have salt in it to the amount due that leakage; and as this is the water evaporated by all the boilers, it will maintain the desired water level in all the fresh water boilers, while the surplus will pass through the communication pipe and feed the salt water boilers. Now, as this water, thus passing from the fresh to the salt water boiler, is much in excess of the salt water that gets in through leakage in the condensers, the water in the fresh water boilers will remain fresh; or if salt, become fresh, (that is, fresh as compared with sea water) and consequently make no deposit—a result which would admit of the use of boilers with less water space in proportion to the heating surface, thereby reducing their size and weight, and admitting the use of a higher pressure of steam, smaller engines, higher grade of expansion, etc.

When the water, thus fed to the salt water boiler is insufficient to maintain the desired level (which will always be the case when the condenser is tight), water must be forced in from the sea; when it becomes too salt, it must be blown off, etc.

Yours, theoretically, JONES.
Benicia, December, 1867.

CORROSION OF BOILERS.—An interesting paper "On the Corrosion of Locomotive Boilers, and the Means of Prevention," has been published in the proceedings of the Institution of Mechanical Engineers, England. The subject has excited attention from the frequency of boilers having exploded in the kingdom within the past year, involving a great loss of life and property. It is stated that the wear of a locomotive boiler is from five to eight years, during which it will have evaporated ten million gallons of water, is equivalent to thirty years' wear of a stationary boiler. Mr. Kirtly, the author of the paper referred to, points out the chemical and mechanical agencies by which the waste of the boiler plates is occasioned, and also the cause of weakness, in the change of temperature produced by the supply of cold water to the boiler, which, however, can be remedied by care in feeding. In the opinion of Mr. Kirtly, all these sources of weakness and of danger may be avoided by an improved mode of constructing boilers. It is pointed out that since the tires of wheels have been manufactured of one single piece, without joint or weld, the breaking of tires has become less frequent than before. Therefore, it is urged that if a boiler is made of one great hoop, instead of a number of plates,

it will be much less liable to explosion than one made in the ordinary way. It is stated that for six years past nineteen of these welded boilers have been in constant use on the Midland Railway in England, and with such satisfactory results that the same mode of construction has been permanently adopted for all the engines on the line. Each of the boilers has traveled 175,000 miles, and is in good condition. The cost is said to be somewhat higher than at present, but this is warranted by the great saving in after repairs and the diminution of risk.—N. Y. Mer. Journal.

The Use of Magnetism in Casting Iron.

In the course of Mr. Robinson's experiments, undertaken to prove the utility of magnetism in producing wrought iron, he records the following: A 4-inch electro-magnet, excited by one of Smee's quart batteries, and capable of sustaining an armature of thirty-five pounds, was applied to a number of sand molds in such a manner that the molten iron should, in the act of casting, be placed within the magnetic current. Similar castings were made from the same ladle full of iron without contact with the magnet.

The effects of the magnet were very distinctly visible—the castings not magnetized were of the ordinary dull grey hue, with granular surface; the fracture presented a mixture of earthy and coarse crystalline structure, very brittle and gritty to the file.

Those subjected to the action of the magnet showed contrary characteristics; and presented a bright, shining surface, very much like lead, newly cast; the fracture finely crystalline, with uniform metallic brilliancy. They yielded, under the hammer, when cold, sufficiently to bear riveting, and at a red heat bore a limited amount of forging without breakage. Under the file, the cut was more like that of brass than iron.

During and for a short time after pouring, the metal in the running holes, subjected to the influence of the battery, was in active ebullition, and when cold was found to be much honey-combed by bubbles, indicating the escape of gaseous matter from the metal.

The theory of this gaseous formation and escape is as follows: If magnetism produces malleable iron from cast iron (as it is known to do), it must be by driving off the carbon in some manner; and if driven off, it must be in a gaseous form. To render carbon gaseous, the presence of oxygen is indispensable. Now, it so happens that among the gases oxygen is para-magnetic; therefore, in the magnetic sphere, as was shown in our issue of October 5, 1867, page 211, there will be a concentration of oxygen. But this will not account for the oxidation of the carbon, unless it can be shown that the carbon is brought in contact with the oxygen. On the surface it will be brought in contact with a condensed atmosphere of oxygen; but without stirring how is the carbon, which is mixed or in combination with the metal below, to be reached? There seems to be but one way of accounting for it, viz., thus: The particles of iron being magnetic, but the particles of carbon not being so, the particles of iron are necessarily colligated together when under the action of the magnet; and the carbon squeezed out, the carbon will necessarily rise to the surface and there burn, which it apparently does, producing a great heat and intense ebullition of metal.

FITTING TIRES TO WHEELS.—Some time ago, when fitting a tire on a wheel at the Royal Arsenal, Woolwich, England, it was found necessary to give a bevel to the wheel of about three-eighths inch. One of the men suggested that the bevel could be given by heating the tire red hot and then immersing it one-half its depth in cold water. This was tried and found to answer perfectly, the part which was immersed being reduced in diameter. The tire was three inches wide, one-half inch thick, and four feet two inches diameter.

GRINDING with a cast iron wheel at high velocity, is a process successfully conducted at many shops, and which has been found to be both economical and efficient.

Scientific Miscellany.

INTERESTING AND VALUABLE DISCOVERY OF NATURAL PHOSPHATES.—Immense deposits of valuable phosphates, said to be superior to Peruvian guano, and of incalculable value, have recently been discovered on plantations hitherto considered of little worth, stretching along the banks of Ashley river, a few miles above Charleston, South Carolina. A company has been formed, backed by Northern capitalists, to utilize those deposits, which consist of animal remains, forming a thick substratum for many miles. The subject excites considerable interest there.

When the deposit was first particularly observed, the discoverers were ignorant alike of its character and value. Its peculiar characteristics were such, however, that samples were forwarded to several distinguished chemists, who soon ascertained its true nature and value. This important discovery will prove of immense benefit to both the city of Charleston and the State of South Carolina. The deposit is supposed to have resulted from an immense collection of bones and other animal matter, which has become decomposed and finally solidified, with from 30 to 50 per cent. of earthy matter, into a semi-silicious or stony substance, of about the consistency of hard clay. The deposits cover many square miles of territory, and much of it is as valuable as the best guano, which sells in the Eastern market as high as \$90 per ton.

The discovery is very interesting in a scientific, as well as in an economic point of view, and its origin will doubtless form a subject of careful investigation at an early day. It is more than probable that it may lead to important discoveries of a similar nature in other localities. With the increase of scientific agriculture, a constantly growing want is felt for earth fertilizers; the ordinary supplies of manure are entirely inadequate, even to present wants, and the supplies of guano are so limited that the period of their utter exhaustion must soon be reached. Either natural or fossiliferous phosphates must be the ultimate dependence of the agriculturist for his supply of plant food.

Modern explorations and scientific research, will undoubtedly meet the future wants of mankind in this respect, to their fullest extent. Past experience has fully established the important fact that the Creator has not been unmindful of the necessities of man, as he increases and multiplies, and gradually unfolds the wants of advanced civilization. The printing press, the steam engine, electricity and mineral fuel are important evidences in this direction. Other wants will be supplied in the same manner, as fast as they become apparent, if man only makes a proper use of the intellect which God has given him, by which to search into the complicated mysteries of His creation.

THE ZODIACAL LIGHT.—Attempts are to be made to determine the character of the Zodiacal light by means of spectrum analysis. Prof. Bayley points out the importance of a spectro-scopical examination of the sun, when totally eclipsed, for the determination of the nature and extent of its luminous atmosphere, and thinks there is much reason to believe that this atmosphere either constitutes in fact or is partially identical with the Zodiacal Light. A rare opportunity will be offered for observations of this kind at the eclipse of the sun in August next, which will be total in accessible portions of the East Indies.

RECENT experiments conducted by the French Government, show that the water-tanks on board a ship should be coated inside with tin, and not with galvanized iron, as at present. It was discovered that the water, under certain various conditions, dissolved the zinc off the iron, and rendered it injurious to health.

SINGULAR PHENOMENON.—A curious and annoying tendency is often encountered among astronomers in the telescopic disks of stars becoming triangular; at times this phenomenon appears to be most particularly apparent during an east or southeast wind. It has been satisfactorily proven that the peculiarity does not depend on the object-glass of the telescope. To what is it due? is a question often asked, but not yet satisfactorily explained. Prof. Airy, the English astronomer Royal, has intimated that the phenomenon might be due to the derangement of the nervous system, which so generally accompanies an east wind; it has also been attributed to the fatigue of the observer. Unfortunately, however, for both these theories, it is often noticed when the observer is fresh and entirely free from fatigue; and Capt. Noblo, a gentleman who rejoices in digestive powers but little inferior to those of an ostrich, and to whom nervous symptoms are as unknown as they are to a steam-engine, is quite as much troubled with "triangular disks" as the most nervous of astronomers. The question of the source of this phenomenon is still unknown; and the opinion is quite generally entertained that it is certainly independent of both the astronomer and his instrument.

COMBUSTION OF COAL.—Native bituminous coals of the best quality contain about 80 per cent. of carbon, and one pound requires 265 cubic feet of air for its combustion. Anthracite coal contains about 92 per cent. of carbon, and requires about 282 cubic feet of air for the combustion of one pound. Only the oxygen in the atmospheric air combines with the carbon of coal during combustion; the nitrogen is inert. Much of the heat of a furnace is dissipated in heating the nitrogen of the air. With oxygen alone the heat will be infinitely more intense.

The thin tubes used by artists to hold liquid colors are formed by placing a disk of block tin in a die or cylinder, into which a punch is slowly forced by hydraulic pressure or other suitable means. The punch almost exactly fits the cylinder, and the tin rises into the intervening annulus in the same way as if it were a liquid, its constituent particles being made to move on each other in much the same way as they would do if the tin were melted by heat.

The tension of liquids has recently been demonstrated by some French philosophers. A ring of thin wire dipped into a liquid—say glycerine—comes out with a film filling up the whole interior. It is shown by experiments that this film will bear some weight before bursting, and that a loop of silk thread thrown upon it will, as the film bursts, be pulled equally in all directions, and made perfectly circular by the tension of the liquid.

THE MAGNESIUM LIGHT IN A BALLOON.—Experiments have been made at Birmingham to try the effect of the magnesium light when attached to a balloon in the air. The experiments were striking in effect, the light thrown forth being very brilliant, and illuminating the streets, houses, and crowds of people with a distinctness resembling day.

When very strongly heated; soapstone, or steatite, loses a portion of its compound water; it becomes harder, and susceptible of taking a polish. It is used in this form for gas burners, for which it possesses many advantages, neither corroding nor burning out.

Sponges belong to the lowest class of animals, and may be said to form the first link in the great chain of life which culminates in man. The finest sponges are obtained from the islands of the Mediterranean; the coarser description from the Bahama banks and the coast of Florida.

FORGING BY PRESSURE.—The applications of this process are daily increasing in number, and in the generality of their employment, especially in England, as we learn from an authority thoroughly conversant with the subject. Thus the hooks and many other parts of differential pulleys are shaped, as also hammers and other similar instruments.

Weekly Stock Circular.

Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
JANUARY 13, 1895.

Money Market.

Our money market continues to be fully supplied; but is somewhat inactive, a moderate discount business being done. Cash on call loans is obtainable at 1 per cent. and at 10 per cent. for long periods on real estate collateral. Owing to the bad condition of our roads, caused by the heavy rains, Bullion is scarce and in demand. We quote Gold Bars at 900/20. Silver Bars are also in request at 1/2 premium. Currency Bills on the Atlantic cities are at 35 1/2 et. premium on Gold; Sight Drafts, payable in 10, 14 1/2 per cent.; Telegraphic Transfers, 1 1/2 @ 1 1/4; Sterling Exchange, 4 3/4; Commercial do, 4 1/2 @ 4 1/4; Exchange on Paris, 5 francs for 30 days.

The free exportation of grain, which has recommenced, and with a fair prospect of continuance, will greatly assist our financial condition. The New York canals have been closed for some time, locking up several millions of bushels of wheat, which will not be available for commerce until next spring. The upper Baltic is also closed, and no supplies may be expected from that quarter for some time to come. The grain of southern Russia is already in market, but little more can be drawn from that source. We also learn of the almost total destruction of the rice crop in Bengal and other parts of India, which cannot fail to bring our supplies of breadstuffs into requisition. The demand from England and France is undiminished, and promises to continue until the new crop comes to hand. On every hand large and remunerative markets are opening to our breadstuffs trade, and we perceive no cause to predict anything but prosperity to our agricultural classes during the current year. The handsome dividends declared by the Bank of California, and by the Savings and Loans institutions, and a number of our mining companies, and most of our Home Insurance companies, prove a very healthy financial condition.

The steamship China, which left this port for Yokohama and Hongkong on the 13th inst., carried away \$34,203 in treasure, divided as follows: to Hongkong, \$375,835, of which \$111,700 was in Gold Bars; \$29,832 in Gold Coin; \$21,000 in Gold Dust; \$35,622 in Silver Bars, and \$175,581 in Mexican Dollars. To Shanghai she took \$2,908 in Silver Bars, and to Yokohama, \$205,343, of which \$50,716 was in Silver Bars, and \$154,627 in Mexican Dollars.

The shipments of Treasure from January 1st to date have been as follows:

January 11—Per Golden City—		
To Hongkong.....	\$1,297,895 33	
To Panama.....	15,000 00	
January 13—Per China—		\$1,312,955 93
To New York.....	\$375,835 82	
To Shanghai.....	2,908 82	
To Yokohama.....	205,343 46	

Total since January 1st, 1895.....\$1,897,199 73
The receipts of Treasure at this city from all sources, (says the Commercial Herald) through regular public channels, during the past twelve months, as compared with 1894, have been as follows:

	1894.	1895.
From California, Northern Mines.....	\$22,715 340	\$40,927,309
From California, Southern Mines.....	5,149,749	4,471,461
From Coastwise Ports, Oregon, etc.....	5,949,536	6,192,734
Imports, Foreign, British Columbia, etc.....	2,887,028	3,962,222
Totals.....	\$32,692,653	\$55,566,226

From an examination of the statements of treasure received in this city, it will be seen that there has been an increase of more than \$2,000,000 in the amount received from the northern mines the past over the preceding year; the greater portion of this increment being due to the State of Nevada. The receipts from the southern mines have meantime fallen off materially, while those from coastwise ports, Oregon, etc., have increased slightly, and those from British Columbia and other foreign ports very considerably. The bullion transmitted the past year to this city, through Wells, Fargo & Co's Express, as being the product of the State of Nevada, amounted to \$18,000,000. To this sum may be added, perhaps, \$500,000 to represent the amount of bullion arriving during the year in private hands, making a total product for that State for 1894 of \$18,500,000. Of this sum about \$2,000,000 may be set down as the product of Reese River and other outside localities, leaving the balance \$6,500,000 to be credited to the Comstock lode. In apportioning the product of these several outside localities, about \$1,500,000 should be set down to account of what is usually termed the Reese River country, which, for the end in view, should be made to embrace all the adjoining districts about Austin; in fact the whole of Lander, Nye and Lincoln counties, excepting perhaps the Silver Peak district, which lies in Esmeralda County, and which has turned out but little bullion the past year. The remaining half million may be divided between Humboldt and Esmeralda counties in the following proportions: \$300,000 for the former and \$200,000 for the latter, none of the other counties in the State except Storey containing the Comstock lode, producing any bullion worth naming. These figures, as will be seen, denote for the year in question a very marked increase in the State at large over the yield of any former year; this rate of increase being in about the same ratio for the Comstock lode and the outside precincts. The product of the former for 1894, was estimated at \$16,250,000, and of the other localities named, \$1,250,000, of which \$1,000,000 was assigned to Reese River, and \$250,000 to Humboldt and Esmeralda. While, however, such gratifying gains have, during this period, signalled the progress of Nevada, the year has rather been one of preliminary preparation than of progress and fruition; the most of the companies owning what may be considered the more promising of the outside mines, having been engaged, at heavy expense, in developing their claims and erecting mills—very few of them in active productive operation. These mills will soon be completed, and the mines be thoroughly explored and placed in condition to yield ore largely; rendering it probable that still more marked additions will be made to the bullion returns of the State the present than was done the past year; and almost insuring for that State a total product for 1895 of \$20,000,000. Even if the Comstock mines should not advance their yield, or should suffer some small abatement this result will probably be attained, as there is an almost certainty of the mines at Silver Peak and those about Belmont turning out a large amount of bullion the current year, to say nothing of promised gains for Humboldt and Esmeralda.

City Stocks.

During the past week the transactions in miscellaneous stocks have been very light. Sales of Spring Valley Water Co. stock were made at \$64, and Union Insurance Co. at \$92 1/2 per share. The usual dividends of our various local corporations have been disbursed during the past fortnight. At the close, San Francisco Gas stock sold at \$65 50; fifty shares Omnibus R. R. at \$63 50, and 250 shares Fireman's Fund Ins. stock at \$88.

Through the kindness of the Secretaries of two of our city railroads, we have obtained the following statements of the past year's business:

The North Beach and Mission Railroad Company was incorporated August 23, 1862. Capital stock, \$1,000,000; receipts in 1894, \$168,984 20; dividends, \$40,000; assessments, none; assets, close of 1894, \$6,000.

The Frenet Street, Mission and Ocean Railroad Company was incorporated April 25, 1863. Capital stock, \$1,000,000. The sales in the open Board during the last quarter of 1894, said sessions having commenced some time in September, amounted to \$4,733,433, and added to the sales in the regular Board, show a grand aggregate of \$70,943,012 for the year 1894, against \$38,000,000 in 1893; \$23,000,000 in 1892, and \$45,000,000 in 1891.

Mining Share Market.

Since the incoming of the new year, mining stocks have experienced a remarkable and rather unexpected advance, amount of business in 1894, \$61,798 77; dividends, none; assessments, none.

From a carefully compiled record of the sales at the regular sessions of the San Francisco Stock and Exchange Board, we give the following interesting figures, extending over a period of three years—1893, 1894, and 1895:

MONTH.	1893.	1894.	1895.
January.....	\$1,901,538	\$2,727,187	\$3,654,322
February.....	2,381,855	3,452,282	3,303,520
March.....	5,628,801	5,299,084	4,914,285
April.....	4,339,032	4,638,096	5,293,016
May.....	5,665,549	3,652,102	7,651,855
June.....	4,711,640	2,406,341	6,861,365
July.....	4,721,185	3,553,574	6,822,200
August.....	4,292,618	1,284,452	7,538,420
September.....	4,829,501	1,788,191	6,193,854
October.....	4,000,500	1,375,117	5,470,842
November.....	4,018,906	2,538,478	4,322,930
December.....	3,777,437	3,055,679	4,814,974
Totals.....	\$49,205,819	\$24,935,893	\$60,274,571

some reaching double the price obtained within a month past, while others improved out of pure sympathy; however, the "shorts" participated rather too freely, and are now suffering from the very sharp advance of a few days ago. Throughout the past week transactions have been unusually heavy, and at the close the market moderated considerably, and prices are not nearly so high. The demand for investment shows no abatement, and in many respects the mines look more promising, hence we may anticipate an active market for some time to come.

HALE & NORCROSS—rapidly advanced to \$134 50 seller 86, on the 14th inst., declined to \$2,300, and closed yesterday at \$2,525. We are informed that the ore found on the 930 level is eighteen feet wide at the north and fourteen feet at the south end, and it is thought will mill \$40 to the ton. In drifting further west on the 930 level they reached promising quartz, which drains the 780 level. The north breast has been opened ten feet, and is said to look well.

SAVAGE—has been the most active stock on the list, rose from \$122 to \$147 50, dropped to \$112 50, and closed at \$120. The bullion yield of this mine amounted to \$139,819 50 during the month of December, being the product of 4,701 1/4 tons of ore, and leaving a profit of \$84,967 91. The average yield was \$11 24 to the ton, and the cost of milling and mining \$21. After paying the \$5 dividend, they carry over a surplus of \$68,000. During the week ending January 11th the ore product was very small, amounting to only 229 tons. At that date they had 1,149 tons on hand at the mine. This mine yielded \$3,737,100 in bullion during the year 1894, against \$1,814,879 in 1893.

CROWN POINT—was in request at an advance, rising from \$725 to \$1,000, and closing at \$900. We have information from the mine to the 13th inst. At that date, the 600 level (east) had been opened some thirty-three feet north and south, showing an average deposit of five and a half feet in width, and had averaged for several days previous \$15 per ton. Over the north winze, on the same level, in "raising" some twenty feet, they found another body of ore three feet wide, which is said to be of good quality. The "raise" of fourteen feet on the east body, 700 level, has developed nine feet of ore, which is reported to look well. The 800 feet station will soon be opened.

IMPERIAL—has been in the market at \$170 @ 176, closing at \$170. The bullion receipts of this company in December amounted to \$68,571. A dispatch of the 14th inst., states that \$10,263 in bullion, being the product of both mills, was shipped on that day to the San Francisco office.

CHOLLAR-POKOR—opened at \$195, rose to \$265, then sold at \$186, and closed at \$195. On the 9th inst., the dumps at the mine contained 2,468 tons of ore. Mail advices to the 13th inst., state that the ore at the north end of the Santa Fe third level had improved, showing a yield of \$53 per ton from sample assays, and \$54 38 from similar assays from the New Santa Fe level. The ore slip of the 12th inst., reports the shipment of 112 tons of ore on that day.

KENTUCK—rose to \$300, receded to \$280, and at the close sold at \$289. During the month of December the bullion returns amounted to \$38,296 57. A dividend of \$15 per share was paid on the 15th inst. In our annual review last week we omitted to state that this company never levied an assessment.

OVERMAN—advanced from \$86 to \$115, declined to \$77 50 and closed at \$75. The actual bullion product of this company during the month of December, from 1,210 tons of ore, was \$19,992 29. The ore at present at the dumps will yield but \$17 to the ton.

YELLOW JACKET—opened at \$668, advanced to \$740, declined to \$670, then sold at \$695, and closed at \$670. GOULD & CURRY sold as high as \$420, and closed at \$375. OPIR sold at \$70 @ 75, then at \$65, and at the close \$55 is bid. The new shaft is now 163 feet in depth.

EMPIRE—advanced to \$185, and at the close \$180 is bid. BELCHER opened at \$152 50, advanced to \$170 @ 165, and at the close \$155 was bid. SIERRA NEVADA sold to a large extent, rising from \$17 to \$30, falling again to \$17, and closing yesterday at \$20. GOLD HILL QUARTZ M. Co. was in the market at \$77 @ 80 per share.

Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thank for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness:

GEORGETOWN, January 22, '97.
MESSRS. DREW & Co.—Sirs: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Washing Ores." It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf. Very truly yours,
A. A. WOODSIDE.

Favorable to Inventors.—Persons holding new inventions of machinery and important improvements, can have the same illustrated and explained in the Mining and Scientific Press, free of charge. In our judgment the discovery is one of real merit, and of sufficient interest to our readers to warrant publication.

Mining Review for 1897.

We give below a review of the Coal, Copper, Borax, Petroleum, and Quicksilver operations for the past year, in continuation from our last week's issue, copying from the Commercial Herald:

COAL.

The only Coal mines now being worked in California are those of Mt. Diablo, though there are many other slight deposits elsewhere, some of which, if opened, it is believed would prove of importance. The other localities in the State at which carboniferous signs, and in some instances very considerable bodies of low grade Coal have been met with, are at Corral Hollow, Alameda county; on Bear Creek, in the Coast Range, Colusa county; at San Benito, Monterey county; Mark West Creek, Sonoma county; near Folsom, and at several other places near the coast and in the interior. At some of these places a small amount of exploratory work has been done, but not generally enough to determine the character of the Coal seam either as to quality or permanency. During the year two of the companies owning mines and operating at Mt. Diablo have built railroads connecting their mines with tide water, whereby the transportation of Coal over that portion of the route has been greatly cheapened and facilitated. The road of the Pittsburg Company, which extends from their mine to their wharf, a distance of 5 1/2 miles, cost over \$150,000. Besides the Company owning it, the Union and Eureka Companies, when at work, send their Coal over this road. The total amount of Coal taken from the Mt. Diablo mines during the past year was 109,490 tons; of which the Black Diamond contributed 33,165 tons. Eight thousand eight hundred and ninety-nine tons also reached this market during the year from Billingsham Bay, which commands a higher price in the San Francisco market than the Mt. Diablo Coal. The latter, though an inferior article, owing to the low figure at which it can be supplied to consumers, has grown into extensive use in San Francisco as a domestic fuel.

COPPER.

The prices of copper, which one year ago having become greatly depressed, it was then expected would soon experience an advance, has, up to this time failed to do so; in consequence of which every leading mine upon this coast has been obliged to discontinue operations. For more than a year past very little copper has been extracted from any of our mines, and for the past six months almost none at all; the only lots going forward consisting of small parcels of high grade ores or a few tons of bars, the latter constituting a novel but interesting feature in our copper trade. Another cause tending to restrict the shipment of our ores to foreign markets has been the high rates of freight that have prevailed, occasioned by the large bulk of breadstuffs going forward. This cause has now been in operation for nearly two years, though there is a prospect that it will soon suffer some slight if not a material abatement. A little more than two years ago transportation hence to the principal copper markets of the world, which the most of our ores must seek as well as low as \$7 1/2 per ton, whereas it is now more than double that amount, making a difference on an average cargo of some ten thousand dollars in favor of former as against present rates of transportation. That the cupriferous resources of this coast are great, admits of no doubt. There are here an immensely of ores, of at least moderately high grade, and of easy obtainment; and we have it upon good authority that a method for reducing certain classes of even the poorer of these, has been devised by parties in this city thoroughly versed in the science and experienced in the practice of metallurgy. This plan, as we are advised, does not involve the necessity of smelting, which, it is clear, cannot be employed for reducing our low grade ores with labor and fuel at present prices. Nothing less than twelve or fifteen per cent. ore will now pay expenses of inferior carriage to this place and shipment hence to Europe. Few mines in the world will yield large quantities of ore of this high grade, certainly very few in California. But we have plenty that will turn out largely six and eight per cent. ores; of this class millions of tons can be obtained annually in this State and the adjoining Territories. These, provided they are of the right composition, as we believe a large proportion of our ores will prove to be, it is found by actual tests, can be treated by this new method with profit to both the mine owner and the metallurgist. We learn that the discoverer of this new process, Mosheim, the well known metallurgist of this city, is about to erect works here on an extended scale whereby the profitable working of eight per cent. ores at first and ultimately of six will be fully assured, the metal to be turned out in the shape of refined copper bars, within twenty-four hours from delivery of the ore. With these promises realized a new impetus will be given to copper mining on this coast, and a very decided value imparted to thousands of cupriferous lodes now practically worthless.

BORAX.

The quantity of this salt manufactured in this State the past year amounted to about 500 tons, being extracted at Borax Lake, where the crude article exists in great abundance. It costs, refined and delivered in San Francisco, \$90 per ton; usual market value here, about \$280 per ton. As but little borax is required for consumption in this State, the most of it is shipped abroad.

PETROLEUM.

Several years ago quite a number of parties engaged in the business of boring for oil in different parts of this State. Many shafts and tunnels were also excavated for the same purpose; the latter being undertaken, as a general thing, at points where there was already a surface flow of oil, were all more or less successful; but none of the borings, though carried in one instance to a depth of more than 1,300 feet, and in many to three or four hundred, succeeded in obtaining anything more than a seepage of oil. In consequence of this ill luck they have all since been abandoned. Fortunately, however, there is an abundance of crude petroleum to be had in California without the trouble and expense of boring for it. From thousands of springs it is found issuing in such quantities as render it probable that the price of the manufactured article will always remain low in this country. Owing to the importation of large quantities of this oil from the East, the refineries started in this city two or three years ago have been obliged to cease operations, and there has been little or no oil made here for the past year or more. It is thought, however, that they will be able to resume the manufacture should prices advance to any appreciable extent.

QUICKSILVER.

With the opening of new mines and the extension of those already opened, the capacity for the production of this metal in California is being rapidly enlarged. In fact, enough could easily be turned out here to supply the requirements of the whole world without severely taxing the energies of the mines now being worked or in course of development.

In fact, it is the question of a market rather than the supply of ore that most concerns the owners of these properties; and since this is an article of limited use, being restricted to a few specific purposes, the consumption is not, like many other commodities, greatly affected by the price. With the extension of mining operations and the arts of civilized life there must, of course, be a corresponding increase in the demand for this metal, yet these are slow and inconsiderable compared with the rapid increase in the power for producing it that is going on in this State. The New Alameda mine, which has now been worked nearly eighteen years, with a steady increase of productive power, when worked to its full capacity, is still turning out at the rate of over 30,000 flasks annually, the ore deposits being abundant, with large reserves extracted and retained for reduction when the demand may call for it. The total yield of this mine since it was first opened approximates half a million flasks, worth, at the lowest calculation, twenty millions of dollars. This Company has a capital of \$10,000,000, employ a force of about 1,200 hands, and are subject to an average yearly expenditure of over \$700,000. About one year ago the Company made large additions to their reduction works, increasing their capacity and introducing many valuable improvements, whereby they have been enabled to treat with profit a lower grade ore than before. The New Idria mine, situated on the easterly slope of the Coast Range, in the western part of Fresno county, after having been restrained from being worked for several years through legal proceedings, resumed operations over a year ago, since which time it has been worked vigorously, and with success, nearly 300 hands having been employed, and the ore yielding about the same per cent. of metal as that from the New Alameda mine. About 12,000 flasks of quicksilver are turned out at this mine annually, and the ore deposits are represented as looking extremely favorable. At the Chapman or San Juan Bautista mine, recently opened on Chapman's Ranch, three and a half miles south of San José, furnaces have been erected capable of reducing 17,000 pounds of quicksilver per month. About one thousand tons of ore have been raised, which yields at the rate of ten per cent. of metal, and the deposit in the mine appears to be large. This mine is turning out about three hundred flasks of metal per month, a rate of production that it is thought can be kept up and perhaps largely increased. The Redington mine, situated in Lake county, about fifty miles north of Suisun City, employs two hundred men, and is turning out about one thousand flasks of quicksilver monthly. Extensive improvements have been made at this place, and it is considered a valuable property, as the deposits are extensive and the ore of fair grade, while the facilities for insuring economical reduction are many. In Pope Valley, Napa county, a valuable deposit of quicksilver has been developed within the past year. Quite recently furnaces having a capacity for reducing eight tons a day, with other works, have been erected at this place, all of which, should first trials warrant, will be largely added to the ensuing spring.

VINES AND TREES FOR JAPAN.—Our readers will recollect that we have spoken of Mr. H. D. Dunn's intention to send to Japan, an assortment of fruit trees, &c., in exchange for a like collection of Japanese products, to be received and introduced in this country. By the steamer China, which sailed on Monday last, he shipped to Yokohama 1,332 trees, 165 bushes, 3,500 plants, and 19,000 grape cuttings. Of these there were 460 apple, comprising the best varieties, 12 nectarine, 20 apricot, 250 pear, 80 cherry, 180 peach, 180 plum, 80 almond, 40 quince and 40 fig trees. The bushes were 25 current, 40 gooseberry, 50 raspberry and 50 blackberry. The amount sent is sufficient to form three fair-sized orchards and vineyards, and if they arrive in Japan in good order, they will ere many years probably be found in all portions of that country. The trees, plants, etc., in exchange, are expected to arrive by the Great Republic or China, and as they are to be sent on behalf of the Japanese Government by Matsmoto Judoyn, the late Commissioner, who is now Superintendent of Agriculture, they will probably embrace most, if not all, the valuable varieties known in Japan. Their arrival in good order will form quite an orn in fruit cultivation in this State, as they will no doubt prove a very valuable addition, which will become of greater importance when railway communication is had with the Atlantic States.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

Mechanics' Mill Association.—San Francisco. Jan. 11th. Capital stock, \$40,000; 100 shares, \$400 each. Trustees: A. W. Jee, W. B. Cantrell, R. Jesse, M. Russell and J. Kendall.

UNITED WORKMEN BOOT AND SHOE MANUFACTURING CO.—Jan. 13th. Capital stock, \$50,000; 1,000 shares, of \$50 each. Officers and Trustees: President, J. A. Mahoney; Vice President, S. J. Cunningham; Treasurer, Daniel McCarthy; Secretary, William G. Buchanan.

Boston Mill Co.—Jan. 15th. Capital stock, \$105,000; 2,100 shares, \$50 each. Trustees: J. Heald, Andrew Moon, J. J. Hucks, J. B. Snyder and J. E. Klense.

ELECTION OF OFFICERS.—The following were elected officers of the San Francisco Stock Exchange Board on Jan. 14th, for the ensuing year. President, J. B. E. Cavalier; Vice President and Caller, Geo. W. Smiley; Secretary, Franklin Lawton; Treasurer, Henry Schmiedell.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Dec. 28th: We have before us the bullion resulting from the recent working of 16 tons of first and second class Tarshish ore at the Silver Creek mill. There are 68 bars, weighing all the way from 41 pounds down to one pound each; total weight, 1,749.60 ozs.; total value, \$2,040.20; value per ton of the ore by assay, \$147.17; result per ton by working, \$127.57, being 86½ per cent. of assay value.

Jan. 4th: Work on the Tarshish has been suspended on account of bad air. The rock continues to improve as they go down.

It is reported that good ore has been found in the Wide West lode of the Pittsburg Co.

This week, Mr. Chalmers sent to London a box of rock and ores from this district.

Amador County.

Ledger, Jan. 11th: A vein of fine rock has been struck in the Tubbs mine at the depth of 160 ft., which has been assayed by different parties and found to be valuable.

The Amador Co. have declared a dividend of \$6 per share, equal to \$22,200 in the aggregate.

Calaveras County.

Chronicle, Jan. 11th: Staples & Co. in old Rich Gulch have their mill nearly completed.

Seventy-eight tons of quartz recently crushed at Hepburn & Co's mill at Railroad Flat paid over \$20 per ton.

San Andreas *Register*, Jan. 11th: Sixty tons of second grade ore recently crushed from the Petticoat mine at Railroad Flat yielded \$30 per ton. Thirty-nine tons from Thomson & Co's claim paid \$9 per ton. Seventy-eight tons from Weihe & Sundermeyer's lead yielded \$22 per ton. Grant & Paul's ore, from their mine near Grant's Ranch, yielded \$7.50 per ton. The New York Co. have out about 40 tons that prospects \$40 per ton. Clark is piping away on his hydraulic claim.

B. K. Thorn has discovered some exceedingly rich quartz near town. Several claims have already been located. The rock resembles the fine pay ore of Amador County.

The West Point correspondent writes: Mr. Norman Harris, of San Francisco has located a large section of gravel mining ground on the ridge above Sandy Gulch, and designs working it by hydraulic process.

Lake County.

The Clear Lake *Courier* says: We learn from reliable authority that rich gold mines have recently been discovered about 30 miles north of this place, not far from the silver lode discovered a short time ago.

Mariposa County.

Mail, Jan. 4th: At an annual meeting of the stockholders of the Mariposa and Merced South Fork Canal Co., lately held in this place, the Trustees were authorized to employ labor and money for the purpose of re-opening the trail and clearing away the brush on the line of the original survey.

Heavy damagee were sustained by the Crown Lead during the flood. Their buildings, storehouse, blacksmith shop, and the house covering the quartz mill, were all swept away. The damage will be promptly repaired, and operations will be resumed in the spring.

Nevada County.

Gazette, Jan. 14th: Mining has been nearly suspended at Eureka on account of the stormy weather. The Black & Young mill is the only one running in the district. This mill will probably be kept in operation all winter. The Birchville Co. recently lost their tunnel by a cave, the damage being so great that they have abandoned it and let a contract for running a new tunnel. The Commercial Co. will not be likely to start their mill again until spring, as they have no rock out, and are not fully prepared for winter work.

Transcript, Jan. 8th: The Belcher Co. have levied an assessment of \$15 per share, delinquent on and after Jan. 27th.

Jan. 12th: Workmen were yesterday engaged in repairing the break made in the Rough and Ready Ditch, above Palmer's mill, by the late storm.

Grass Valley *Union*, Jan. 7th: At Graniteville matters are rather dull, owing to the snow and the winter season. The Birchville Co. made the banner clean-up. After a 4½ days' run they cleaned up \$2,377, their rock paying \$54 per ton. They have recently let a contract to run a tunnel 600 ft. in length, which will strike a point where the lode will have backs to the depth of 125 ft.

Black & Young are running their mill on some very fine rock, and will run the greater part of the winter. They have one of the finest mills in the district.

The Commercial, owned by Valentine, of San Francisco, has stopped for the winter, but will resume in the spring. The mill is a fine one of 10 stamps, and has two of Hendy's concentrators and one Wheeler pan.

Messrs. Clark & Pasquillon have just finished a 10-stamp mill, to be run by water power, and they will commence crushing some 200 tons of rock for Mr. Sweet, of Nevada City. The appearance of the rock denotes a rich clean-up. After Mr. Sweet's rock is disposed of, Clark & Pasquillon will crush rock from their own ledge, the "Maggie Jane."

The "Jim Ledge" will be worked as soon as some business matters are arranged—the company owning it having been recently incorporated. Numerous tunnels are being run for the proper development of the mine.

The Nebraska claim at Empire Flat, Bridgeport Township, was recently sold to H. Pauline, S. Coleman and D. Crittenden for the sum of \$20,000. The purchasers intend to erect a 10-stamp mill in a short time for the purpose of reducing the cement.

Placer County.

Herald, Jan. 11th: McCarty has sned McGonigle, of the famous Green Emigrant mine, for \$50,000. The suit grew out of financial complications connected with the mine.

Plumas County.

Quincy National, Jan. 4th: Hardscrabble is the name given to the new mining camp at Mohawk Valley. About 20 claims have been located at that place. The claims all prospect well, and the new mining camp bids fair to be one of the most prosperous in the county.

Sol. Bahb, of Mohawk Valley, was the fortunate discoverer of a chunk of solid gold, weighing 11½ ozs., which he picked up in the new claims near his ranch, about 10 days ago.

Sacramento County.

Folsom Telegraph, Jan. 11th: The ditch of the Natoma Water and Mining Co. was considerably injured by the late storm, several flumes being blown down and washed away on the line.

Sierra County.

The La Porte correspondent writes: The late snow storm has done some damage about La Porte in the way of blowing down flumes, breaking ditches, washing out water-pipes, etc. All of which is more than compensated for, by the abundant supply of water which has set all the miners at work.

Downville *Messenger*, Jan. 11th: The Howland Flat correspondent writes that the storm was very severe at that place. Dams and reservoirs in the creeks were swept away like paper castles in a gale of wind. Flumes, dumps and fixtures of mining companies were entirely swept away where in the least exposed. The Union Co. had its large timber house entirely unroofed, a second one partly, and waste track covering demolished. The Monumental Co. lost its reservoir and considerable flume, besides suffering some, but not very great damage to buildings.

Mining presents nothing new. The Union Co. is driving business at rather a brisker rate than usual, owing to the plentifulness of water for hoisting and washing purposes. The Down East, Shirley and Lone Star Cos. are doing reasonably well. The Monumental Co., by a mishap, was compelled to run 700 ft. of new tunnel to get around a piece of its tunnel that began caving and settling, which was caused by water breaking in overhead, following the tunnel back and settling it. The workmen are progressing rapidly, and expect to strike the tunnel above in March next. Good progress is being made in the El Dorado tunnel.

Sierrita County.

Eureka Union, Dec. 28th: J. H. V. Barry, of Humboldt, informs us that he has run a tunnel in on a spur of his quartz ledge on Punch Creek till he has finally struck the main ledge. The ledge is about two feet thick, and exhibits rock of very fine quality. He has heretofore crushed from this ledge some very rich rock, and he feels confident that it will prove exceedingly valuable.

ARIZONA.

Miner, Dec. 14th: Messrs. England & Bridges have lately struck a gulch about four miles from Prescott, that promises well. When it became known, quite a rush was made for the diggings. About 20 men are at work making from \$4 to \$8 per day. The gold is coarse, and pieces have been found weighing \$4. Various parties are making rockers and getting ready to work their claims.

The ore in the Chase lode is as good, if not better than ever.

The placer miners on the Hassayampa are making from \$20 to \$30 per week.

Rock in the Dividend and Galena ledges in Big Bug district is looking well.

Dr. Moeller is having an arastra built at

Walker's Camp on Lynx Creek, with which to test some of the lodes owned by him.

COLORADO.

Georgetown Miner, Dec. 19th: Garrett, Martine & Co. have made improvements lately in their works, and they are now running nicely. C. J. Goss has struck a vein of rich argentiferous galena in the Lilly lode, that assays \$3,600 silver per ton. Garrett, Martine & Co. have shipped since our last report, 2,204.50 ozs. of silver bullion. A recent test of 50 lbs. of ore from the Elijah Hiso lode, gave a result of \$233.43 silver per ton. The Nuckolls lode is looking well. Work on the W. H. White lode is actively carried on. The vein of sulphuret ore in the bottom of the shaft is now 10 or 12 in. wide.

Dec. 26th: Garrett, Martine & Co. report shipments during the week of 3,621.20 ozs. of silver bullion. Prof. Dibbin has taken a piece of silver hulsion from the Stevens lode, East Argentine, weighing 288.20 ozs., valued at \$389.07. A 3-ft. vein of fine iron sulphurets has been struck in the Albro lode, Morris district. A lot of ore from the Lilly lode, recently reduced, yielded bullion to the amount of 248.40 ozs., valued at \$335.35. The Munsell lode, a recent discovery on Leavenworth Mountain, is yielding some fine specimens of argentiferous galena. We recently saw a piece of silver bullion, extracted from 30 lbs. of ore from the Comot lode on Griffith Mountain, the yield of which was at the rate of \$455 silver per ton.

Denver *News*, Dec. 19th: The Herkimer lode is improving finely, the vein is now showing six ft. of fine quartz. Ore from the Blacktail, a recent discovery near Lee Hill, assays \$1,200 per ton. We were shown four bars of hulsion at the mint this morning, weighing 245.03 ozs., valued at \$4418.74. A fine bar of bullion can be seen at the First National Bank, weighing 152.08 ozs., valued at \$2,756. The First National Bank received two retorts of gold this morning from Central, one weighing 155 ozs., and valued at \$3,000; the other weighing 25 ozs., valued at \$250. Yesterday we saw at the First National Bank four bars of bullion, weighing 277.93 ozs., valued at \$5,798.33, also a quantity of dust, weighing 160 ozs., valued at \$2,880.

DACOTAH.

Reese River Reveille, Dec. 24th: A letter recently received in this city from South Pass City, says that a new ledge had been struck in the South Pass mines, that far surpasses everything else in the district. It is said to be large and rich, and is called the Lone Star of the State. Besides this discovery it is reported that parties have found placer diggings towards Wind river, about 30 miles from South Pass.

Virginia *Enterprise*, Jan. 14th: A private letter just received from the Sweetwater mines gives the following: There are discoveries being made every day, and such as will throw everything in the shade that has been found in the last seven years. It is hard to believe, but it is so. They have enough in sight to run two or three such mills as the Gould & Curry for years, and of that character that men are now making from \$5 to \$10 per day pounding it out in common iron mortars. They have also discovered placer mines that will pay well and give employment to 20,000 men, and are still finding more.

Silver Bend *Reporter*, Jan. 4th: We extract the following from a letter recently received from South Pass City: When I first arrived here there were but a very few cabins and the diggings limited; now we have quite a town, and every day there are new discoveries of quartz and placers. I must say this is the richest camp I was ever in. The quartz is rich, and there are any quantity of ledges—generally gold-bearing. To be honest, I think the placer diggings are limited, although I know that there are four gulches close to town that will pay big in the spring at soon as water will run in the ditches.

Salt Lake *Telegraph*, Dec. 19th: John Y. Groen has just returned from the Sweetwater mines. He says there are about 600 men there, who have erected 100 log cabins. Placer diggings have been discovered which yield good returns, and the prospects are very favorable for lively times, and general prosperity in the coming spring.

IDAHO.

Lewiston *Journal*, Dec. 21st: The Williams & Maxwell mill has made a clean up from 10 tons of the rock from the Winfield Scott lode; they saved over \$3,000 in gold—some was lost. Three bars were received by Godfrid Gamble, weighing 80 ozs., by Hunt & Hart's express, and can be seen at the California Brewery. The bars are unassayed, but will yield over \$12 to the ounce.

The Hic Jacet mill has started up. The

machinery moves readily, steadily, and with rapid motion.

The Lewiston correspondent writes: The Amador Co. have to open their tunnel during winter, so as to work with better grade. The Elk City Co. also, are running a tunnel. They have to run only about 50 feet further. The Nez Perce Hill Company have widened their ditch, and got all things ready for spring. Witt & Son are pushing their work for another year.

Improvements are going on also, at Clearwater Station. The Pioneer and Lantiam Cos. are pushing their ditch through, and will tap Crooked river by March.

MONTANA.

Post, Dec. 28th: Last summer some parties discovered rich quartz croppings on the north side of Quartz Gulch, and after prospecting some time without finding the lode, were about to give up the search, when, by the aid of Jack Thompson, the discoverer of Esmeralda, they were enabled in less than ten days to lay open one of the richest lodes in this vicinity. It has been named the "Mexicano." The discoverers are vigorously at work, and contemplate erecting a mill in the spring.

The East Bannack Co. will shortly commence operations on property in Nelson Gulch. Work will also be commenced on the Shober lead, and it will be thoroughly tested.

The Golden State Co's mill in Brown's Gulch has been closed, the engine having been found insufficient to propel the machinery.

The Leesburgh correspondent writes: The discovery of the Silver Star lead, 35 miles southwest of this place, has caused considerable excitement. About 25 lbs. of the rock have been brought to town, and by assay of L. D. Pettit, yields a paying prospect of both gold and silver.

Another quartz ledge has been discovered lately not far from here, which is said to be very rich in gold. Its locality is only known to a few.

NEVADA.

Esmeralda Enterprise, Jan. 12th: W. H. Bourne, Supt. of the Midas mine, recently brought in 786 ozs. of gold bullion, worth \$17.50 per oz., amounting to over \$13,000, being the yield of 147 tons of ore from the Midas mine, crushed at the Pioneer mill. Of the 147 tons of ore crushed, 60 tons were first class ore, estimated at \$150 per ton, and 87 tons second class, estimated at \$60 per ton. The ore was taken from the depth of 100 ft. The tunnel is now in 750 ft., and will be extended 200 ft. further. It has already cut several veins of ore assaying from \$50 to \$170 per ton. The ores are of a sulphuret or pyritous character, but also show much free gold. The average yield of the last crushing was \$90 per ton.

There are about 200 tons of ore out at the Wheeler mine, which will pay from \$40 to \$50 per ton. The Pioneer mill is at work upon it, and by the time it is reduced 400 tons more of the same sort will be ready.

The Wilson mine is looking better than ever. They have 1,000 tons of ore out that will pay \$50 per ton. They are having ore crushed at the arastra mill of Ex-Lieut. Gov. Crossman; it yields \$50 per ton. Wilson's 10-stamp mill is about ready to start upon ore from the Wilson mine.

Enterprise, Jan. 14th: The huge gold brick from the Midas claim, Pine Grove, molded from the bullion brought in last Saturday by Mr. Bourne, the superintendent, was yesterday on exhibition at the Bank of California, and attracted much attention. It weighs 777½ ozs., is \$41.5 fine, and is worth \$13,524.84. It is the most valuable brick ever molded in this State. The company expect to bring in many more like it, as their mine is looking better than ever before in its history.

RESE RIVER.

Reveille, Dec. 27th: Last week 15 tons and 300 lbs. of the best ore from the Superior ledge, worked at the small 5-stamp mill on the ground, yielded a bar of gold, worth \$144.95. Mr. Slauson brought samples of the blanketing and tailings into the city, and had them assayed at the office of Boalt & Stetefeldt; the blanketings gave \$163.29 in gold and \$18.07 in silver, making a total of \$181.36 per ton; and the tailings \$52.75 in gold and \$7.86 in silver, a total of \$60.61 per ton. The ore is pronounced to be of very simple combination, and may be reduced easily by the proper means.

Dec. 28th: On the 23d, 3,000 ozs. of crude bullion were received at Austin from Coover's Bunker Hill mill.

Dec. 30th: Two bars of bullion from the mill of the Belmont Co. arrived by the stage on Saturday.

Yesterday 2,600 ozs. of crude bullion were brought into the city from Rigby's mill, San Antonio district.

Dec. 31st: John M. Reid and Daniel Blakely have discovered a rich ledge west

of Hot Creek. From an average lot of rock from the ledge, they obtained an assay of \$221, but many specimens would have gone up into the thousands. The ore is almost exactly like that taken from the Highbridge ledge. Five ox teams left here on the 10th with 16 tons of ore for reduction at the Old Dominion Co's mill at Hot Creek. A portion of the ore is from the Sweetstakes ledge, and is expected to yield \$900 per ton.

A handsome strike of good ore has just been made in the Old Dominion Co's Merriam mine at Hot Creek. At the point where the fine ore was developed the casings of the vein are said to be thoroughly defined, and the vein matter is broad and compact.

Jan. 21: The total shipment of bullion by the Manhattan Co. during the past year was \$553,368. The company have \$20,000 on hand awaiting opportunity for shipment.

During the month of December, Wells, Fargo & Co. shipped from this city 11,103 lbs. of bullion, valued at \$170,266.35.

Jan. 6th: The mines of the Silver Peak and Gold Mountain Co., in Silver Peak district, are producing a fine quality of ore. Some 2,500 tons are now ready for the mill.

Jan. 7th: Three and three-quarters tons of ore from the Silver Champion mine in Silver Bend district, which were hauled to this city and reduced at the California mill, yielded at the rate of \$302.04 per ton. It shows a well-defined ledge three feet thick, from which two men are taking out from three to four tons a week.

Some 8,000 ozs. of bullion arrived in town this morning from the mill of the Centenary Co., Newark district, and were taken to the assay office of the Manhattan mill for melting and assay.

During the week ending Saturday, 4th instant, there were received at the assay office of the Manhattan mill 34,264 ozs. of crude bullion for melting and assay.

Lane & Fuller propose to let a contract for sinking 300 ft. in the shaft of the Lane & Fuller mine on Lander Hill.

Silver Bend Reporter, Jan. 4th: The new 40-stamp mill of the Combination Co. is rapidly approaching completion, and will be in motion by the 15th inst. Several hundred tons of ore have already been delivered at the battery, and is now arriving there at the rate of about 40 tons daily.

The Belmont Co's works upon the Transylvania have developed a splendid body of ore from the bottom of the incline north as far as the gallery extends. This is at the water line, and has been driven for a distance of 50 ft. The body of ore throughout this extent is found to be 15 ft. thick, and now supplies the 10-stamp mill of the company. It requires but little assorting. A winze is now in progress for connecting the first and second levels.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia Enterprise, Jan. 11th: It is reported that the workmen on the 930-foot level in the Hale & Norcross, have struck the vein, and were getting out very rich rock. The report has created quite a sensation.

Jan. 12th: From the best information we can obtain, the body of ore disclosed in the Hale & Norcross mine, is at least 10 ft. wide, which has been developed with encouraging prospect in every direction.

Jan. 14th: A letter has been received in this city stating that diggings have been found on Queen's river, near where Colonel McDermitt was killed, which prospect as high as \$120 to the pan.

A mortar for the Rhode Island mill, of the great weight of 5,700 pounds, was cast last Saturday at the Nevada Foundry, Silver City.

The Lady Bryan mine is still yielding large quantities of ore, which is being worked at a mill near the mine, with very good results.

NEW MEXICO.

A correspondent of the Denver News of Dec. 25th, writing from Elizabethtown, says: Sluicing is nearly abandoned in consequence of freezing weather. Prospecting is carried on to a considerable extent, claims are being put in shape for the coming spring. Very little money is being taken out at present. A great many miners are leaving for Taos, Moro and other towns to seek better winter quarters, but we keep the number good by new arrivals nearly every day, who strike forth with pick, pan and shovel to satisfy themselves as to the quality of our mines. It is the opinion of miners who have been prospecting the past season, that this is not a second California, but they are confident that good pay can be obtained. Humboldt, Michigan, Grönse and Willow Gulches, Spanish Bar, and a number of other discoveries, promise good returns.

OREGON.

The Boise Democrat says that new diggings have been struck on Pino Creek, Oregon, 120 miles from Willow Creek.

Humboldt Register, Dec. 21st: Quite an excitement has been created at the military posts in Southern Oregon on account of rich discoveries of gold, reported to have been found on the Mulhenn river. The excitement is so great that the soldiers are with difficulty prevented from going off en masse.

Our Home Industries.

Under this head, the Commercial Herald gives a very interesting resumé of the present condition of the various industrial interests of the State, outside of mining. After giving quite a detailed report of what our woolen mills are doing, that paper closes its remarks under that head as follows:

The establishment of woolen mills has been of immense benefit to our wool growers, as well as to the community at large, whom they have supplied with many necessities of clothing. Until these mills commenced running the entire clip of both Oregon and California were at the mercy of a monopoly of wool buyers purchasing on speculation for the Atlantic States. The demand for local manufactures broke up this monopoly, and through active competition for desirable clips raised the prices of all kinds of wool fully three cents per pound. The increased value thus obtained by wool growers will be seen when we state that upwards of 8,000,000 pounds were marketed in San Francisco in 1868, of which the local mills (Pioneer and Mission) purchased about 2,200,000 pounds, the exports for the same year being about 4,700,000 pounds. The total clips of 1867 marketed in San Francisco were in round numbers about 11,000,000 pounds, of which the mills in this city purchased about 3,000,000 pounds; 7,000,000 pounds were exported, and the balance remains on storage. The total value of the wool marketed in San Francisco during 1867 is estimated in round numbers at \$1,900,000, while there are still considerable quantities (amounts not known) held by wool growers on their ranches in the interior of the State. The actual number of sheep in California is a matter of estimate only, no definite returns having been made to any responsible party. It is believed by parties interested in the business, and who have had opportunities to judge, that at the commencement of this year there were fully 2,200,000 sheep in California, and that, unless certain contingencies excepted, the clips of wool for 1868 will exceed 17,000,000 pounds.

The other industries are summed up as follows:

DRIED AND WET FRUITS.

California is pre-eminently the fruit-growing State of the Union, there being produced within her borders not only the fruits of the temperate, but also many of the torrid zone. For size and quality of apples, pears, peaches, plums, etc., she has no rival in the States east of the Sierra Nevada, while the orange, lime, citron, fig, pomegranate, and olive and almond, and Madera nut flourish as if in their native clime. In the former named fruits, such as the apple and others, Oregon is the pioneer producer on the Pacific coast, the quantity and quality of such being both large and excellent. Possessing a similar climate to many of the Atlantic States with considerable frost in winter and rain in summer, her fruits are produced at the same seasons, and possess the same qualities for keeping. In California, on the contrary, the long continued heat and dryness of summer seems to hasten the maturing of fruit, those varieties of apples, pears, etc., termed autumn fruits, ripening in September, and winter fruits in October and November, with quite poor keeping qualities. For flavor and size, however, these fruits are equal or superior to those of Oregon, while for extent of culture they far exceed here, the largest orchards in the Union being in California. The most extensive orchard is that of Briggs & Haskell, at Marysville, which consists of one hundred and sixty acres, all planted with the best varieties of trees known. The Surveyor General's report, made from County Assessors' returns for 1868, gives the following figures regarding fruit trees in the State, viz: Apple, 1,694,986; pear, 482,477; peach, 1,083,023; plum, 234,280; lemon, 3,029; orange, 11,284; almonds, 28,640; Madera nuts, 17,271; olives, 11,881. For so young a State as California, and with so sparse a population (estimated at 470,507), the above figures regarding fruit growing are certainly most remarkable. At the present time the fruit product both green and dried, is far in advance of domestic consumption. Among others, the firm above referred to put up in 1867 rising fifty tons dried fruit, a portion of which has been sent by steamer via the Isthmus to New York seeking a market. The result of this shipment, as well as that of some grapes, has not been received by the shippers, but they feel encouraged enough to make further ventures to the same market. At present fully half the crop of green fruits is allowed to perish by rotting in the orchard for lack of consumers, which will probably be rectified as soon as a profitable export market for dried fruits can be found. One of the advantages fruit growers in California have is the early and profuse bearing of trees, both of which are unprecedented in the other States. All the varieties of figs known to commerce are produced in California, although none but the native blue fruit up to date have been successfully dried. The increase in the quality of figs produced will undoubtedly cause experiments to be made in curing them, some of which will probably be successful, and thereby increase the cultivation of the fruit. Quite a number of varieties of prunes have been cured in California, the fruit being of good quality. Raisins have been made in various portions of the State, the best being those made by B. N. Bugbey, Polson. The principal variety of grape used for the purpose by him was the Piller Zagon, which made excellent raisins, although of quite small size, as compared with those imported from Malaga. During 1867 Mr. Bugbey used the Malaga Muscatella, a much larger grape, which made a large-sized, fine-looking raisin, resembling to some extent the imported fruit. The curing of raisins is a somewhat hazardous business, requiring the use of drying houses to protect the fruit from light showers of rain which sometimes happen in September and damage the fruit. From two slight showers in August and September, 1867, the above named party had about eighteen hundred boxes raisins injured, so that they had to be made into wine to avoid total loss. Considerable quantities of raisins of inferior quality have been made in some portions of the State from the White Muscat and Sweet Water Grapes, as well as

the common or Los Angeles grape, which latter makes a plump, but tough inferior fruit. Citron is to be had in abundance in the southern counties of California. Although the fruit is of large size and flavor, none of the experiments in curing it of a quality to compete with the imported article have been successful. At present the larger portion of the crop is not gathered but allowed to rot. Zante or black currant have within the last two years been produced by J. M. Billings, at his vineyard near San José. The quantity made was in both cases quite small, but the feasibility of growing and curing currants in the State has been successfully determined. The quality of those made is unexceptionable in flavor and appearance, and considerable interest is being shown in extending the culture of the fruits. The olive was first introduced into California by the Spanish priests soon after their settlement in the State. The fruit thrives in all the valley counties, but is more extensively cultivated in Santa Barbara and Los Angeles counties. Of late considerable interest has been shown in propagating the tree, large numbers having been planted in the middle and northern counties of the State. In nut fruits there are only two varieties indigenous to the State, viz: a species of black walnut found on the lower Sacramento river and Walnut creek, near Mount Diablo, and the common hazel nut. The Madera nut had, however, been introduced into the south part of the State some thirty years ago, and being a profitable fruit to cultivate, has spread into most of the valley counties. The papershell, langueloe, soft shell and Marcellis almonds, are being planted in quite large numbers throughout California, a considerable quantity of the fruit having been marketed for the last four years. The fruit is of excellent quality and the tree a good bearer. The common chestnut of the Atlantic States has been grown to a very limited extent in El Dorado county, and the Japanese variety of the same fruit in Calaveras county. The quantity of each is however very limited, and will continue so for many years. Peanuts are grown quite extensively, the crop in 1866 being one hundred and fifty tons, Yolo county producing nearly half that amount. The bottom lands along the Sacramento river are well adapted to the cultivation of this fruit which, in good seasons, averages from one hundred and fifty to two hundred bushels per acre.

HOPS.

The cultivation of this article promises to become one of the leading agricultural industries of California. The long dry summers and fertile soil insures crops with certainty and large yield. The business, although in its infancy, is being engaged in by many counties, the vine being found very productive and the hops of good quality. The total crop of 1866 was 700,912 pounds, of which thirty-six acres in Sacramento county produced 8,300 pounds. The crop of 1867 is not yet definitely ascertained, but good judges estimate it at fully 400,000 pounds, or over half the domestic consumption on the Pacific coast. Sacramento county is probably the largest hop growing county, the product in 1867 being over 150,000 pounds. Yuba, Placer and Los Angeles counties also produced large quantities, only a portion of which have yet been marketed. The climate of the State is said to be unsurpassed in the Union for their successful production, there being no strong south or east winds experienced, nor heavy rain storm during the summer. The first of these, in the Atlantic States and Europe, often seriously affects the crop; the plants receiving much injury from being prostrated by the wind, while the rain produces mildew, blight and parasitical insects to such extent as often to destroy fully half the crop. The yield in California is very large, in instances being known where over five thousand pounds hops have been gathered from one acre, while a yield of two thousand to three thousand pounds per acre is quite common. The largest crop raised in 1867 were those of Daniel Flint, who harvested 65,000 lbs. averaging 1,300 lbs. per acre, and Flint & Haynie, who, from twenty-eight acres vines located on the American River bottom lands, a short distance from Sacramento, harvested a little over 44,000 pounds, or an average of over 1,500 pounds per acre. The yield would have been much larger but for the fact that high water in the spring overflowed the land, remaining on some portions up to the middle of May and almost destroying the vines so that they bore very few hops. There is a vast amount of land along the rivers in the interior of the State which is well suited for raising hops. Hops also grow well on rolling land but the crop per acre is less, the average yield being from 1,000 to 1,500 pounds to say 2,500 pounds on river bottoms in a good season. It is believed that California can produce better hops, larger yield, and of better average quality, than can be had in the Atlantic States, and parties, competent judges of its profitability, assert that in time the hop growers of this State will export largely to the Eastern ports and Europe. One advantage claimed for California grown hops is their remarkable strength or brewing purposes, the blossom containing an excess of lupulin—the bitter principle which makes the hop valuable for brewing purposes. The crop of 1867 has in the main been disposed of within the range of 40¢ to 65¢ per lb., the latter the closing price.

SILK.

This branch of industry seems to be making great progress in most portions of the State. The climate of California is so admirably adapted for successful silkworm culture that scarcely any risk of loss is encountered as compared with that common in France and Italy. The business is very simple to manage and can be carried on by farmers to considerable extent without interfering with their other work. It is peculiarly suitable for women and children, the labor being light, pleasant and instructive. The absence of violent electrical storms and rains in summer insures healthy worms, and, consequently, cocoons of the first quality. The mulberry of different varieties, which is now extensively planted, thrives luxuriantly in all portions of the State and furnishes food of excellent quality for silk growing purposes. Although great difficulty was experienced in procuring the original stock of eggs, no drawbacks have been experienced in their propagation since their introduction. Persons acquainted with silk culture in Europe are very sanguine that the business in California will in time become of vast proportions, and build up branches of manufactures for which the United States are now dependent on foreign nations. The silk worm not only makes better cocoons in California, but is said to reproduce its species in larger proportion than is the case elsewhere, the increase ranging from one-third to one-half more eggs.

The business is being prosecuted in almost all portions of the State, the total production of cocoons in 1866 being reported by County Assessors as two hundred and ninety-six pounds, one hundred and fifty pounds being raised in Santa Clara county. The crop of 1867 is not yet known, but it must be a large increase on that of the preceding year, one firm in Santa Barbara county having raised three hundred thousand cocoons—equal to one thousand pounds. Great preparations have been made for extending the business in 1868 the present year, from which its success as a permanent branch of domestic industry will probably be determined. Mulberry trees have been planted in most of the valley counties, and it looks likely that at least ten tons raw silk will be made the present year. In Sacramento county one person, Wm. M. Haynie, has over half a million of two year old trees, and

has five million eggs, all of which he expects to hatch during the months of May, June, July and August. As three hundred cocoons average a pound of silk, it will be seen that from five to six tons can, under favorable circumstances, be raised by this one party alone.

In silk reeling and weaving a successful attempt has been made by Joseph Newman, who has produced several pieces of silk goods, in appearance of very creditable quality. Attempts are now being made to build a large factory to manufacture silk fabrics at San José, Mr. Newman being the projector of the enterprise.

PITCH, ROSIN AND TURPENTINE.

The immense pine forests of this coast afford the raw material for manufacturing these articles in the greatest abundance, rendering their supply from home sources always cheap and certain. Both in California and Oregon the business of gathering the sap or raw Turpentine from the pine trees by tapping, is quite extensively engaged in; and though the prices have gone down, under importations from the East, the business appears to prosper. So far, this branch of business in California has been confined to Butte county, where it has been carried on for a number of years past. The sap, when gathered, is manufactured into Rosin, Pitch and Turpentine at Marysville, none of the raw material coming to this city. Last year a little over 20,000 gallons of Turpentine were produced—not so much as the year before, owing to low prices. The present year a much larger quantity will be made. The product of Rosin last year was 2,500 cases, scarcely half the usual quantity. These articles could be delivered here cheaper than the imported, were it not for costs of freight from the interior. With a reduction here, Domestic Turpentine would be able to keep the Eastern article out of our market. Last year the price was \$1, but 65 cents per gallon in this city. It is now worth \$1, but with larger production it will probably decline again.

SALT.

From ten to twelve thousand tons of this article are made annually, in Alameda county, from sea water, by the process of solar evaporation. There are 18 companies at this place, employing 150 men. Their reservoirs cover many hundred acres of the low and formerly worthless lands along the Bay. The Salt produced here is worth in San Francisco at \$8 to \$10 per ton. A good deal is also made by the same process from the saline waters of small ponds and springs situated in various other parts of the State, the product of which is mostly required for consumption in the vicinity of these several works, though some portion of it also reaches this market. The Pacific Salt Works near Los Angeles manufacture considerable quantities every year, several hundred tons of which are annually sent to San Francisco. In Colusa county a considerable quantity of good salt is made by evaporating the waters of a group of saline springs situated 30 miles southwest of the town of Colusa. At several places in Kern county this article is produced in quantities sufficient for all local uses, by evaporating the waters of springs and ponds, whereby a very good article is made. About 35,000 tons of coarse rock or salt are ground every year by the mills in this city, of which there are six, the most of them kept constantly at work.

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20, 10 cents.
Over \$20 and not exceeding \$50, 25 cents.
No fractions of cents to be introduced in an Order. United States Treasury Notes, or National Bank Notes only received or paid.

To send over \$50, additional Orders must be obtained. Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out: No. Amount Date,, 1867.

MONEY ORDER.

Required for the sum of \$.... Payable at State of Payable to Residing at State of Sent by Residing at State of Entered in Register:

Names of parties and places, and the sums, to be written in the plainest possible manner.

As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.

Office.	County.	Office.	County.
Albany	Alameda	Napa City	Napa
Benicia	Benicia	Nevada City	Nevada
Castroville	San Benito	Oakland	Oakland
Chico	Butte	Oroville	Butte
Columbia	Tuolumne	Petaluma	Sonoma
Colusa	Colusa	Placerville	El Dorado
Downieville	Sierra	Red Bluff	Tehama
Dutch Flat	Placer	Sacramento	Sacramento
Eureka	Humboldt	San Rafael	Martin
Folsom City	Sacramento	San Francisco	San Francisco
Forest Hill	Placer	Santa Cruz	Santa Cruz
Georgetown	El Dorado	San Jose	Santa Clara
Gibsonville	Sierra	Santa Rosa	Sonoma
Gilroy	Santa Clara	Slack	Slack
Grass Valley	Nevada	Sonoma	Tuolumne
Heldsville	Sonoma	Stockton	Sacramento
Jone Valley	Amador	Susana City	Susana
Jackson	Amador	Susana City	Susana
La Porte	Plumas	Vacaville	Solano
Los Angeles	Los Angeles	Vallejo	Solano
Mariposa	Mariposa	Visalia	Tulare
Markevill	Alpine	Watsonville	Santa Cruz
Marysville	Yuba	Weaverville	Trinity
Martinez	Contra Costa	Wilmington	Los Angeles
Mokelumne Hill	Calaveras	Yreka	Siskiyou
Monterey	Monterey		

NEVADA.

Office.	County.	Office.	County.
Virginia City	Storey	Aurora	Lander
Carson	Ormsby		Esmeralda

OREGON.

Office.	County.	Office.	County.
Albany	Linn	La Grande	Umatilla
Clayton City	Grant	Oregon City	Clackamas
Cervellia	Benton	Portland	Multnomah
Dallas	Polk	Roseburg	Douglas
Eugene City	Lano	Salem	Murion
Jacksonville	Jackson	The Dalles	Wasco
Lafayette	Yam Hill	Umatilla	Umatilla

IDAHO TERRITORY.

Office.	County.	Office.	County.
Boise City	Ada	Ruby City	Owyhee
Idaho City	Boise	Lewiston	Ney Perce

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena	Richmond	Virginia City	Madison

WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia	Thurston	Vancouver	Clark
Steinboon City	Proctor	Walla-Walla	Walla-Walla

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.
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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Kuo, is our duly soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1886.

Mr. C. T. Roney is our duly authorized agent for Sacramento County. Nov. 23, 1887.

Mr. J. C. Yates is our duly authorized traveling agent. July 6, 1887.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1887.

Mr. H. C. Northrop, is our duly authorized agent for Oregon, Washington, Idaho, and Montana. Aug. 17, 1887.

OUR NEW YORK AGENT.—Mr. M. A. LATROFF, formerly of California, is our authorized Agent in New York. Parties in the Eastern States who desire to subscribe for or advertise in the MINING AND SCIENTIFIC PRESS, can address Mr. L., at No. 725 Broadway, for the present. Nov. 26, 1887.

San Francisco:

Saturday Morning, Jan. 18, 1886.

Notices to Correspondents.

C. W. L.—The evolution of ammonia combined with acid or otherwise from volcanoes, has been doubted by many. The subject has been very elaborately treated by Prof. Bunsen, who cites as corroborative if not confirmatory of his views, that during the eruption of Hecla in 1846, when the lava issued from the deepest of the four newly formed craters and spread over the plain of Thjorsa, that when the professor was sojourning on the spot in July, only a few months after the eruption, he observed that the lower portion of the lava stream was studded over with smoking fumeroles, in which a large quantity of beautiful crystallized muriate of ammonia was undergoing a process of sublimation, and some hundreds of pounds could have been collected. That this phenomenon was only observable where meadows had been overflowed by the lava. Higher up where the last traces of a stunted cryptogamic vegetation disappeared, the formation of the salt ceased also. The large fumeroles at the back of the crater, and even of the four new craters, yielded only sulphur, muriatic and sulphurous acids, without exhibiting the slightest trace of ammoniacal products.

R. B.—Gay Lussac was the first who made the observation that a crystal of potash-alum, on being put into a solution of ammonia-alum, continues to increase without changing its form. Beaudant subsequently found, that a mixed solution of sulphate of copper and sulphate of iron, would give crystals, having the form of the latter, but still containing a considerable quantity of copper. Mitscherlich was the first who observed an identity of form in a sufficient number of cases to determine that this phenomenon was the consequence of a similarity in composition. He termed this similarity in crystalline forms *isomorphism* (from two Greek words, meaning like and form), and the bodies, which assume one and the same form, he named isomorphous bodies.

L. B.—Whenever substances chemically unite, directly, heat is emitted, and the more rapidly the union is effected the greater is the quantity of heat emitted in a given time; until, in some cases, it rises sufficiently high to cause ignition and combustion; light, as well as heat, being abundantly extricated on obtaining a sufficiently high temperature, as all solid substances, when heated beyond a certain point, become luminous.

S. M.—During the last twenty years no inconsiderable number of artificial organic bases have been formed by chemists, similar in all respects to the natural alkaloids. The methods adopted in laboratories most probably resemble those employed by nature. The chemists of England, France and Germany, have for some time devoted great attention to the discovery of cinchonine or quinine.

CHURCH OFFICERS Elected.—At the annual meeting of the Union Square Baptist Church, held last Monday evening, the following named officers were elected for the ensuing year: Trustees—J. S. Ring, H. B. Angell, L. L. Alexander, W. B. Ewer, H. M. Rosekrans, H. K. Cummings and W. S. Beebe; Treasurer, George M. Wood; Clerk, Thomas S. Way.

Miners Their Own Law-Makers.

Mr. Steele, member of the Assembly from Siskiyou County, has introduced a bill, the object of which is to regulate the taking up and holding of mining claims. By it, the Justice of the Peace in each township is made the Recorder of Claims, and a long tariff of fees established for the benefit of the aforesaid officer and the constable. New mining regulations and amendments of those existing can be adopted only at a meeting called by the Justice, who presides in person, receiving four dollars per day for so doing.

It is not probable that the proposition will be received with general favor by the miners. They like to make their own laws, appoint their own officers, and establish their own fees. And above all, the last man for Recorder of a mining district is, it seems to us, the magistrate in that district. The majority of cases upon which a Justice of the Peace in a mining section is called to decide, are, perhaps, those relating to mining matters; and, as the Recorder is, of necessity, the first man who knows the exact location of a new discovery, he often becomes personally interested in the question of mining title to such an extent as to disqualify him to decide with impartiality upon that question. The expense, too, of the new plan will be an objection. Under the present arrangement, many claims,—especially those upon vein mines,—are entered upon the records of the county; and the miner can always, if he chooses to pay the regular fees, thus have an unquestionable record in addition to that made with the Recorder, chosen by himself and his mates.

As the adoption becomes general of the plan of acquiring a title in fee to mining locations, in accordance with the Congressional Act enabling thereto, the whole class of questions relating to these matters will be found to simplify and arrange themselves; many of these questions will in fact disappear entirely. It is to be desired, therefore, that the matter be thus left to adjust itself without interference.

HANCOCK MINING Co.—Mr. S. S. Sweet, Secretary of the above named company, which is located in Del Norte county, has laid upon our table specimens of the new gold-bearing ore which has recently been found to occur in large quantities in this mine. This ore is very similar to the "gossan" which generally accompanies copper mines; but which is usually confined to the croppings, or extends to but little depth below them. This ore is evidently a decomposed auriferous sulphuret, and from working processes in this city is known to yield from \$12 to \$15 per ton. It occurs in large quantities, and is easily mined and crushed, and extends to the deepest portion of the mine yet reached—fully 175 feet. We understand that the company is about to erect a small mill for the purpose of crushing this ore, which, it is confidently believed, will prove a very profitable operation for the shareholders.

IDAHO ORE.—We have received a call during the week from a gentleman recently from Idaho, who showed us some specimens of silver ore from that region. The samples are from the Banner mine, Silver Hill district, and Sophia Tracy ledge, in Yuba district, and are really beautiful specimens. Where the ore has been roasted, the globules of silver can be distinctly seen studding the surface. Such ore would do credit to any mine in any country; and but for the distance which separates these mines from some point of supply, making the cost of transportation so great, they would be ranked among the best ever discovered. Accompanying the ore were two small bars of silver taken from ore belonging to the famous Atlanta ledge. The Atlanta has a vein sixty feet wide, and the ore lays in pockets or chimneys, interspersed through the vein. It is the most flourishing mine in Idaho. The bars will be forwarded to Mr. French, at South Bend, Indiana, who is one of the owners in the ledge.

Kustel's New Book.

A TREATISE ON CONCENTRATION OF ALL KINDS OF ORES; including the Chlorination Process for Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally. By GUIDO KUSTEL, Mining Engineer and Metallurgist; Author of "Nevada and California Processes of Silver and Gold Extraction." With 120 Diagrams on Seven Plates. San Francisco: Office of the MINING AND SCIENTIFIC PRESS, No. 505 Clay Street.

This work is designed chiefly to show the present condition of the art of concentration; simply setting forth the principles on which it is founded, without entering into scientific details or considerations. It opens with an introduction, descriptive of the dressing of ores, explaining the principles and objects thereof; also, the separation of ores or sorting of the rock, with reference to its value or worthlessness, and with regard to the different minerals which it may contain, detailing the proper mode or modes by which that object may be most conveniently effected. The work also describes and illustrates various cleansing and sizing contrivances, the long use of which in European mines has fully proved their value. The whole is so arranged and illustrated by diagrams as to enable any one accustomed to handling ores to be successful in concentrating them.

Seventy-five pages, exclusive of illustrations, are devoted to a lengthy and elaborate treatise on the reduction of ores, including the erection and treatment of stamp-works, descriptive in detail of various batteries, speed, curve, and order of lifts, feeding and discharge of batteries, reduction by rolling mills, construction and operation of grinders, etc., etc. All these various processes and classes of machinery are treated upon quite fully and clearly, and explained by numerous illustrations.

The author next proceeds to an elaborate discussion of the concentration of ores, stating briefly the principles on which the process depends, with fully detailed and illustrated descriptions of nearly fifty different inventions which have been devised for accomplishing that end. All but one of the different California concentrators are described and illustrated—six in number. Among the concentrating machines; the preference is given to self-discharging, continuous contrivances; and among these to such as have been quite fully investigated as to their efficiency—the amount of power and water required to run them, their proportion of loss, etc.—circumstances quite too much neglected with California inventors and millmen. A short description of many less important contrivances is given, for the reason, as the author says, that the knowledge of them may prevent many persons from spending time and money on inventions which may be supposed to be new, but which, in fact, have already been tried and discarded for more effective devices. Upwards of ninety pages, exclusive of illustrations, are devoted to this portion of the work. One chapter is devoted to "Special Concentration" of gold, silver, lead and copper ores, closing with several pages on the "Value of Ores for Concentration."

The work concludes with a carefully written treatise on the chlorination of gold and silver ores, giving a full description thereof, with full illustrations, such as are quite sufficient to give any person at all conversant with such matters a correct idea of both the mechanical and chemical operations connected with the process. This portion of the work has been prepared in consequence of the general demand for information on the subject, and the great importance and interest at present connected with the treatment of sulphurets—the extraction of the gold therefrom being very difficult and exceedingly unsatisfactory by most or all other processes.

Indeed, the entire work is just what is needed at the present time on this coast, where so little is known of what has been done in other countries in those departments of mining to which the work is espe-

cially devoted. We shall give some extracts from this book in future numbers; in the meantime, we would advise all persons interested in the treatment of the ores of gold, silver or copper, to procure the work and study it thoroughly. It may be obtained at this office and at the book stores generally. Price, \$7.50. For the convenience of those who reside at a distance from settled towns where dealers in books may be found, the work will be supplied from this office by mail, post-paid, on the receipt, free of expense, of \$7.50 in coin.

The Mechanics' Institute Fair.

The Board of Supervisors have granted the Mechanics' Institute the use of Union Square for the purpose of erecting thereon a building in which to hold the next industrial exhibition of the Institute. As we have already stated, it is proposed to make the coming exhibition one of the most comprehensive and creditable displays of the productive and mechanical industries of the Pacific Coast which has been attempted; also to give it an international character, so far as to embrace all the countries bordering upon both sides of the Pacific Ocean, also Australia and other islands in that ocean. Such a display cannot fail to prove of immense practical benefit to this State, and to the Pacific Coast generally. The city has acted promptly and generously in granting to the Institute the only practically available spot in the city where such an exhibition can be most conveniently made a success.

The managers of the Institute are already actively engaged in maturing the plans necessary to such a display, and are industriously laboring to secure the cooperation of our own people, and kindred bodies in adjoining States and territories, and are endeavoring, through the proper channels, to interest the foreign governments, alluded to in the exhibition.

An application has been made for a money grant from the State, in the form of premiums, similar to the same kind of aid which is extended to the annual exhibitions of the State Agricultural Society. Notwithstanding the great necessity for economy and retrenchment in State legislation, we do not see any reason why the representative institution of the mechanical interests of the State should not be allowed to make at least this one call for assistance in this direction, which has been so generously and so properly extended to the representative of the agricultural interests.

Of course the managers of the Institute will be expected to exercise great judgment and the most rigid economy consistent with the magnitude of the undertaking, in all matters of a pecuniary nature. An expensive or showy structure is not needed or expected. The finances of the Institute will not admit of lavish or unnecessary expenditure; neither the public nor the exigencies of the case require such. Funds are needed to pay off the debt upon the present Institute building, to the end that the society may have more space therein for their own use, instead of being compelled to lease the same as a means of acquiring money for paying its monthly interest. The liberality of our citizens, which has never failed the Institute in any laudable undertaking, will be more likely to meet with a renewed response under such a policy than under any other mode of action.

INSTRUCTION IN CHLORINATION.—We would call attention to the advertisement of Mr. John Agrell, in another column. Mr. A. has charge of the Chlorination Works connected with the Coney & Bigelow mill, at Jackson, Amador county, which works are now in constant and most successful operation, and afford a most excellent opportunity for persons, in that part of the State, to secure a thorough, practical and scientific knowledge of this important and most approved method for the treatment of auriferous sulphurets.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors in the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

72,058.—CENTER-BOARD FOR VESSELS.—F. J. McFarlan, San Francisco, Cal.:

I claim the location of the center-boards, or other equivalent devices for the same specific purpose, in the extreme bow and stern of vessels, that is to say, the placing of the said boards forward of the foremast, or aft of the mainmast in two-masted vessels, and forward of the foremast and aft of the mizzen-mast in three-masted vessels, substantially as shown and described, and for the objects and purposes specified.

72,064.—DERRIK.—D. J. McDonald, Gold Hill, Nev.:

I claim 1. The derrik-standard L and frame K, fitted in the derrik-frame J, and arranged, as shown, for the ready adjustment of the standard L.

2. The fitting of the derrik-frame J on the wagon-frame, as shown, to wit, by means of the circular-plate, D, frame, E, and circular plate, G, with the wheel, E, and pinion Y, to admit of the ready turning of the derrik, as set forth.

3. The supports D', provided with screws a, and attached to the frame, B, as shown, in connection with the bevels b in platform, C, for the purpose of leveling the device, substantially as described.

4. The annular platform, C, applied to the wagon, A, when used in combination with a revolving derrik-frame, J, substantially as and for the purpose specified.

72,091.—IMPROVEMENT IN CARRIAGES.—Anson Searls, San Francisco, Cal.:

I claim 1. The axle composed of the steel bars d and g, attached as herein described. 2. The clip, b, passing around under the axle, with its ends fastened to the plate a on the rocker, both before and behind the axle, substantially as described.

This invention relates to the construction of carriage axles, which the inventor forms like an inverted T, which very much strengthens the axle, with the use of but little metal. It also combines an improved steel circle, upon which the body turns, upon the front axle, the whole forming a combination which is cheaper, easier, and more durable than any now in use.

72,110.—STREET PAVEMENT.—Henry M. Stow, San Francisco, Cal.:

I claim 1. A wooden pavement, composed of alternate tiers of square-ended and wedge-shaped ends of the latter being driven down into a foundation-bed of sand or earth, substantially as and for the purpose described.

2. A wooden pavement, composed of blocks with lower ends wedge-formed, and all driven down into a foundation-bed of sand or earth, substantially as shown and described.

72,111.—STREET PAVEMENT.—Henry M. Stow, San Francisco, Cal.:

I claim 1. The cast iron plates, with projecting wedge-shaped flanges, to be driven into the sand or earth, substantially as and for the purpose set forth.

2. Also, a pavement composed of alternate tiers of cast iron plates, with projecting wedge-shaped flanges and wedge-shaped wooden blocks, driven into the sand and earth, substantially as described.

72,138.—APPARATUS FOR ENAMELING PHOTOGRAPHIC PICTURES.—Nathaniel Weston, San Francisco, Cal.:

I claim the rest, A, for the glass, or its equivalent; the use of the glasses, B, B, the weight, G, the fastenings, H, the clamps, E, E, or their equivalents, in part or in combination, for the purposes herein set forth.

72,182.—IMPROVED ORE CONCENTRATOR AND AMALGAMATOR.—Stephen Fountain, Silver City, Nev.:

I claim the box, D, having the lever, b, stems, n, or an equivalent device, together with the operating lever, d, and the rods, g, the whole constructed and arranged substantially as and for the purposes described.

The object of this invention is to construct an improved variable central discharge for concentrators and amalgamators, by which the lighter and worthless contents can be easily discharged, as desired, while the heavy and more valuable portion being thrown to the circumference of the containing vessel, by the centrifugal motion, are not in danger of being lost when the gates are opened.

72,202.—IMPROVED SPRING BED BOTTOM.—Frank A. Huntington, San Francisco, Cal.:

I claim the standard, A, with caps or tops, a, and the elastic bonds or springs, B, arranged and attached to frames or bars, substantially as and for the purposes described.

The object of this invention is to provide a cheap, durable and easy spring for beds, sofas, lounges and other articles of furniture, and consists in attaching to the cross-bar or boards of beds or furniture, between the openings, standards of wood or other material, having a cap or pad upon the top; a band or bands of india rubber being fastened to the lower end of the standard, attached to each side of the cross-bars by staples, so that when a weight is placed upon the bed or springs, those standards are pressed down between the openings, and when the weight is removed they regain their original position, with the end projecting a little below the cross-bars or boards.

72,205.—IMPROVED APPARATUS FOR SAVING PRECIOUS METALS.—William C. Knight, Yankee Jim's, Cal.:

I claim the V-shaped apparatus, with an adjustable partition, B, substantially as and for the purposes described.

The object of this invention is to provide an apparatus for saving precious metals, as from the pulp of quartz mills and the granulated quicksilver which escapes from the sluice-box. This is accomplished by placing at the end of sluice-boxes an apparatus in the form of a letter V, having a movable vertical partition through it, and a cross-bar placed upon one side of the apparatus, which prevents the escape of the valuable portions of the ore and quicksilver, while the debris and other valueless matter is carried out by the current of water into the tail-race.

72,249.—IMPROVED STRAW CUTTER.—John Weichhart, San Francisco, Cal.:

I claim 1. The manner of operating the feed roller, B, by the toothed wheel, C, and ram, D, substantially as described.

2. The cam, E, in combination with the arms, d, d, jointed to the knife, and the spring, H, for throwing it back.

3. The movable pressure plate, b, spiral springs, c, c, so that the material to be cut will be held firmly in place, substantially as described and shown.

The object of this invention is to provide an improved machine for cutting all kinds of fibrous material, but chiefly for cutting tobacco, hay, straw, and corn stalks. It is so constructed as to be self-feeding, and the material is brought under the knife in a compact form. To accomplish this a feed-box of suitable dimensions is provided, having a square edged iron or cutter-box placed across the outlet. Above this is another bar, having upright pins surrounded by spiral springs, the pins moving up and down in holes on a cross-plate. A corrugated roller, through which a rod passes, is placed across the machine, back of the knife, having at the end of the roller a toothed wheel, which a cam, placed upon a horizontal shaft, operates for turning the roller. Another cam is placed upon a horizontal shaft, which gives a peculiar motion to the knife in its downward stroke.

RECENT INVENTIONS.

ANOTHER NEW CRUSHING MILL.—the editor of the Gold Hill News has seen the model and drawings of a new machine, designed for crushing quartz, the invention of a gentleman residing in that vicinity, which is described as follows: This mill or crusher is simply an iron wheel six feet in diameter, and weighing about a ton, with a chilled iron surface twelve inches in width, which will be made to rotate alternately backward and forward over a grating composed of heavy bars, placed one, two, or three inches apart, as may be found requisite. The wheel rotates in a narrow space between two walls, and is kept in proper position by means of iron guides placed at the axle, allowing it to move freely in the directions proposed. By means of self-regulating springs and a sliding beam, an immense pressure is brought to bear from above directly upon the upper periphery of the wheel, and the motion is communicated by means of power applied to a crank in the center of the wheel, causing it to move about seven feet backward and forward as above described.

The same power which moves this wheel, also causes a little distributing car on each side of the wheel to follow it up with the requisite supply of quartz, which being distributed in the proper place, the immense pressure of the wheel is brought to bear upon it, grinding and reducing it to such a degree that it passes down through the

bars upon a screen below, where that which is not reduced to the proper degree of fineness for grinding and amalgamating by pan process, is separated for further treatment under the wheel. We do not care to enter into a minute description of the details, but all the little emergencies are provided for.

The general idea, especially of the pressure applied to the top of the wheel, partakes somewhat of the character of larceny upon the Collins mill, but is far more simple in its operation.

According to estimate with this new mill, considerably over one hundred tons of quartz can be crushed in a day, and a competent engineer estimates that a ten horse power engine will be fully competent to do the work. Millions upon millions of tons of low grade ore are awaiting some such cheap mode of crushing as this promises to be, in every portion of the State as well as in our own famous Comstock.

COLLEGE OF CALIFORNIA AND COLLEGE SCHOOL.—The catalogues of these institutions for the new year have been published.

There are twenty-one students in the college classes. Prof. Willard B. Rising, formerly of the Michigan University, has been added to the faculty during the past year. He has charge of the department of Natural Science. The Freshman class is the largest which has ever been gathered at the college. The College School has upon its catalogue the names of three hundred and one students who have been in attendance during the last year.

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Important to Californians.—Many inventors have lately had their claims for Patents seriously (and in some cases fatally) delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of honest agents, are none the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. THE MINING AND SCIENTIFIC PRESS PATENT AGENCY has strictly complied with the regulations of the Department, and properly filed all necessary papers as Claim Agents.

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Schleswig Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.
Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.
Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
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Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.
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Lunenburg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.
Schleswig Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.
Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.
Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per 1½ ounce.
Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail by way of Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.
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Particular attention paid to repairing Reynold's Cut-off
5v15-1y

THE FROZEN WELL OF VERMONT.—The famous frozen well at Brandon, Vt., which has attracted so much attention, is described by a recent visitor as being forty-one feet in depth and passing through a stratum of frozen gravel fifteen feet thick before reaching water. The frozen gravel was overlaid by a four-foot layer of stiff clay, and underlaid by two or three feet of gravel which was not frozen. It was dug in 1858 by Mr. Twombly, the owner, to supply his dwelling with water. In winter it freezes over generally at night, several inches in thickness, and they have to send a boy down in the morning to break it, and sometimes, in very cold winters, it freezes so hard as to be useless until spring. Last winter this was the case, and in the month of May a man had to be sent down into the well to break up the ice before water could be obtained. During the summer there is ice attached to the stones of the wall near the surface of the water, and sometimes small pieces are brought up in the bucket. Of course the water is cold at all times like ice water. The owner says the middle of the shaft is the coldest, and he complains of having caught the rheumatism by going down into it in hot weather. The extensive deposit of frozen gravel is the cause of the freezing of the water in the well; but the mystery is how did the frozen gravel get there? Was it formed during the glacial period? Wells were sunk at a distance of seventy feet on each side of this one to ascertain the cause of the phenomena. In one at twenty-nine feet, they found water of 46° temperature, while that of the frozen well was 40°. In the others they found layers of frozen gravel and ice from two inches to a foot thick at a depth of 29 to 34 feet, at which point everything was solid, and chunks of ice were picked up by the workmen, and the workmen stopped. The mystery, however, is still unexplained.—*Exchange.*

THE STRUGGLE FOR LIFE.—Certain native animals of New Zealand seem to give way before those from Europe, with which they are brought in contact. The Norway rat has completely exterminated the native rat of New Zealand. The English house-fly drives out the blue-bottled native. Capt. Cook carried pigs to New Zealand and they have increased so rapidly that the landlords now offer rewards for killing them. English weeds monopolize the soil. European clover exterminates the native flax plant, and European annuals destroy the New Zealand perennials. These facts tend to prove that organisms of the northern latitudes are more hardy than those nearer the equator.

ALLEGED CURE OF THE CATTLE PLAGUE.—Mr. Philbert, a large land owner in Southern Russia, who possesses 80,000 merino sheep, 2,000 or 3,000 horned cattle, and 500 or 600 horses, states that of all the means employed in numerous experiments made by him to preserve his horned beasts against the cattle plague, sea water, given as drink in place of soft water, had, during the epidemic, complete success. All the animals supplied with sea water were spared by the malady, including those intentionally placed constantly in contact with sick beasts.

A. T. DEWEY. C. W. M. SMITH. W. B. EWER.

THE BEST IN AMERICA.

The Mining and Scientific Press,

Is the Largest and Best MINING AND MECHANICAL Newspaper issued in the United States.

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Patent Agents, Publishers, Book and Job Printers, 505 Clay Street, San Francisco.

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DEWEY & CO.,
San Francisco.

July 1st, 1887.



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Mechanics' Institute Building, Post Street. [Exterior View.]

A. de LEO de LAGUNA.

[10v15-8m]

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Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

THE GOLDEN ERA

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13.15 3m

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15v14-9r

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Fire or Tubular Boilers, with plain circular or spiral
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COMPANY.

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B. M. HARTSHORNE, President. 13v12

Mining Secretary.

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Safety Fuse and Shot for sale by
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24v15 3m 414 Front street, San Francisco.

A CAVE IN A STRANGE PLACE.—The New York *Sun* says that a workman engaged in cellar excavations in Sixth avenue, near Twenty-ninth street, was startled by a giving-way of the ground upon which he stood. He sprang to avoid he knew not what, but only succeeded in going down on top of the dirt and stones, instead of having those unpleasant things fall on him. The fall was not a serious one in its effects upon the man, as became speedily known by his outcries. Though it was already nearly dark, he could be seen by the crowd who gathered around the not bottomless pit, and in due time a rope was obtained and the unfortunate individual made his appearance on the surface, more frightened than hurt. The pit, whatever it was, seemed unlike an ordinary vault, being without an arched roof. It was apparently a naturally-formed cavern, and may be of considerable extent. The bottom must have been twenty feet, or more, below the street surface.

WHAT NEW YORK IS COMING TO.—The New York *Tribune* has been reading a lesson to the "rascals" who hold high places in that city. It holds up before them, in *terrorem*, the San Francisco Vigilance Committee and its doings, and draws a parallel, sentence by sentence, between the state of things in New York at the present time and in San Francisco in 1856; and thus closes its exhortation: "Will corrupt supervisors, corrupt councilmen, corrupt judges, in our city, take a warning? 'The thieves must be driven out if it costs a bloody war, and it will cost a bloody war if they are not.'"

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ESTABLISHED.....May, 1860

Mining and Scientific Press



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Dr. Breed will promptly attend to any business, and give special attention to chemical, rejected, and other difficult and important cases. Address Dr. DANIEL BREED, Washington, D. C. 25v15-6m

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Selling at Five Dollars Each!
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On Saturday, February 9, 1867.
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Call and see them. 8v14

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Repairing promptly attended to. 3v15f

ESTABLISHED.....[May, 1860]

VOLUME SIXTEEN

—OF THE—
Mining and Scientific Press,
COMMENCING JANUARY, 1868.

DEWEY & CO., Publishers.

Issued every SATURDAY, at our Book and Job Printing Office, 505 Clay street, corner of Sansome, San Francisco.
Terms in Advance.—One year, \$3; Six months, \$3; Single copies, 15 cents; Monthly Series, \$5.50 per year, or 65 cents per number. Back Volumes from January, 1864, \$3 per volume; bound, \$5 per volume.
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NEW YORK, JAPAN AND CHINA.

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BRANNAN STREETS, 11 o'clock A. M., of the following dates, for PANAMA, connecting via Panama Railroad, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.
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When the 10th, 18th and 30th fall on Sunday, they will leave on Saturday preceding; when the 18th falls on Sunday, they will leave on Monday following.

Steamer leaving San Francisco on the 10th touches at Manzanillo. All touch at Acapulco.
Departures of 13th or 19th connect with French Transatlantic Co's steamer for St. Nazaire, and English steamer for South America.
Departure of 10th is expected to connect with English steamer for Southampton and South America, and Australia, and P. R. Co's steamer for Central America. Through tickets can be obtained.

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January 14th—GOLDEN CITY.....Capt. W. F. Laidge, Connecting with HENRY CHAUNCEY, Capt. Gray.

January 18th—SACRAMENTO.....Capt. Wm. H. Parker, Connecting with the RISING STAR, Capt. Conner.

January 30th—CONSTITUTION.....Capt. J. M. Cavarly, Connecting with ARIZONA, Capt. Maury.

Cabin passengers berthed through. Baggage checked through—100 pounds allowed each adult.
An experienced Surgeon on board. Medicine and attendance free.
These steamers will positively sail at 11 o'clock. Passengers requested to have their baggage on board before 10 o'clock.

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For Merchandise and Freight for New York and way ports, apply to Messrs. WELLS, FARGO & CO.
The Steamship CHINA, Capt. E. W. Smith, will be dispatched January 13th, at noon from wharf, corner of First and Brannan streets, for YOKOHAMA and HONG KONG, connecting at Yokohama with the steamer COSTA RICA for SHANGHAI.

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—OF—
RUPTURE!

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DR. A. FOLLEAU
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He has no connection with any Agency. 21v14-11p1f

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DEWEY & CO.,
Patent Agents, Publishers and Job Printers, 505 Clay st.

DEWEY & CO.
PATENT AGENTS,
ENGRAVERS AND PUBLISHERS
Mining & Scientific Press.
CIRCULARS FREE.
SAN FRANCISCO.

New Mining Advertisements.

Hannum Copper Mining Company. Location: Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of January, 1868, an assessment of seventy-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 609 Market street, San Francisco. Any stock upon which said assessment shall remain unpaid on the fourteenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. S. SWEET, Secretary. Jan 18

U. S. Grant Mining Company.—Location of Works and Mine: Excelsior District, Nevada County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of December, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
N. M. Baxter.....	not issued	2	\$100 00
T. J. J. Baker.....	24, 25, 26, 27, 28, 29	150	289 40
E. W. Flenniken.....	3	4	24 00
E. W. Flenniken, Trustee.....	9	4	24 00
L. J. Flint.....	not issued	20	100 00
J. H. Flint.....	30	15	75 00
H. J. Hall.....	45	100	500 00
S. McFarland.....	not issued	15	80 00
J. E. Squire.....	18, 35, 36	71	355 00
Alley.....	20, 21, 22, 23	100	500 00
J. P. Wheeler.....	30, 31, 32, 33	200	1000 00

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by J. C. Merrill & Co., 204 and 206 California street, San Francisco, on Saturday, the eighth day of February, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. L. BARKER, Secretary. Jan 18

Mining Notices--Continued.

Arizona Consolidated Mining Company, Eurca District, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of December, 1867, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable in United States gold and silver coin, to the Secretary, at the office of said Company, No. 611 Clay street.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventeenth day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

G. W. BUNNELL, Secretary. Jan 18

Office, 405 Front street, San Francisco.

Chilpouca Mining Company--District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the third day of December, 1867, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Ruzzolius, D.....	11	30	\$150 00
Ruzzolius, D.....	74	1	50 00
Cleveslieh, E.....	22	1	50 00
Demore, F.....	18	18	90 00
Descaizo, A.....	25	5	25 00
Foga, E. C.....	45	15	75 00
Ghirardelli, D.....	23	29	145 00
Ghirardelli, D.....	72	90	450 00
Ghirardelli, D.....	75	20	100 00
Lohe, F.....	39	9	45 00
Moshelmer, Jos.....	36	25	125 00
Moshelmer, Jos.....	37	26	130 00
Spinoni, G.....	29	9	45 00
Vincent, J.....	60	9	45 00
Vincent, J.....	60	10	50 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of J. Middleton & Son, No. 404 Montgomery street, San Francisco, Cal., on Monday, the twentieth day of January, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN F. LOISE, Secretary. Jan 18

Office, 318 California street, up-stairs, San Francisco.

Corallera Gold and Silver Mining Company, Chihuahua, Morelos Mining District, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of January, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 321 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the eleventh day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary. Jan 18

Office, 321 Washington street, San Francisco.

Dio Padre Gold and Silver Mining Company, Altam, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of January, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, corner Broadway and Battery streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the eleventh day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. C. McCOMBE, Secretary. Jan 18

Office, corner Broadway and Battery streets.

Hope Gravel Mining Company.—Location of Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of December, 1867, an assessment (No. 19) of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, on or before the first day of January, 1868, at the office of David Wilder, Secretary, at No. 533 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-second day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fourth day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 533 Kearny street, corner of Sacramento, San Francisco, California. dec21

I. X. L. Gold and Silver Mining Company, No. 2, Silver Mountain District, Alpine County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighteenth day of October, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Avery, Clark	53	4	4.00
Adams, R. S.	11	1	1.00
Armb, B. W.	63	5	5.00
Ayers, Isaac	109	5	5.00
Brown, Geo. H.	101	8	8.00
Boudant, Wm.	137	10	10.00
Christie, John	121	5	5.00
Christie, John	125	3	3.00
Davidson, Daniel	118	10	10.00
E. A. E. D.	4	4	4.00
Edgar, R. D.	21	10	10.00
Edgar, R. D.	24	4	4.00
Edwin, W. A.	61	5	5.00
Edwards, John	98	10	10.00
Edwards, John	99	5	5.00
Erickson, R. H.	103	7	7.00
Edgar, R. D.	61	2	2.00
Finch, A. H.	101	5	5.00
Griffin, W. B.	61	4	4.00
Griffin, W. B.	65	4	4.00
Griffin, W. B.	66	4	4.00
Gray, John	89	17	17.00
Gray, John	90	9	9.00
Gray, John	91	8	8.00
Gray, John	92	8	8.00
Griffith, Lewis	105	5	5.00
Griffith, Lewis	106	5	5.00
Hill, V. R.	73	14	14.00
Hill, V. R.	74	3	3.00
Hill, V. R.	75	3	3.00
Hill, V. R.	76	3	3.00
Hill, V. R.	77	1	1.00
Hill, V. R.	78	1	1.00
Hill, V. R.	79	1	1.00
Hill, V. R.	80	1	1.00
Hill, V. R.	81	1	1.00
Hill, V. R.	82	1	1.00
Hill, V. R.	83	1	1.00
Hill, V. R.	84	1	1.00
Hill, V. R.	85	1	1.00
Hill, V. R.	86	1	1.00
Hill, V. R.	87	1	1.00
Hill, V. R.	88	1	1.00
Hill, V. R.	89	1	1.00
Hill, V. R.	90	1	1.00
Hill, V. R.	91	1	1.00
Hill, V. R.	92	1	1.00
Hill, V. R.	93	1	1.00
Hill, V. R.	94	1	1.00
Hill, V. R.	95	1	1.00
Hill, V. R.	96	1	1.00
Hill, V. R.	97	1	1.00
Hill, V. R.	98	1	1.00
Hill, V. R.	99	1	1.00
Hill, V. R.	100	1	1.00
Hill, V. R.	101	1	1.00
Hill, V. R.	102	1	1.00
Hill, V. R.	103	1	1.00
Hill, V. R.	104	1	1.00
Hill, V. R.	105	1	1.00
Hill, V. R.	106	1	1.00
Hill, V. R.	107	1	1.00
Hill, V. R.	108	1	1.00
Hill, V. R.	109	1	1.00
Hill, V. R.	110	1	1.00
Hill, V. R.	111	1	1.00
Hill, V. R.	112	1	1.00
Hill, V. R.	113	1	1.00
Hill, V. R.	114	1	1.00
Hill, V. R.	115	1	1.00
Hill, V. R.	116	1	1.00
Hill, V. R.	117	1	1.00
Hill, V. R.	118	1	1.00
Hill, V. R.	119	1	1.00
Hill, V. R.	120	1	1.00
Hill, V. R.	121	1	1.00
Hill, V. R.	122	1	1.00
Hill, V. R.	123	1	1.00
Hill, V. R.	124	1	1.00
Hill, V. R.	125	1	1.00
Hill, V. R.	126	1	1.00
Hill, V. R.	127	1	1.00
Hill, V. R.	128	1	1.00
Hill, V. R.	129	1	1.00
Hill, V. R.	130	1	1.00
Hill, V. R.	131	1	1.00
Hill, V. R.	132	1	1.00
Hill, V. R.	133	1	1.00
Hill, V. R.	134	1	1.00
Hill, V. R.	135	1	1.00
Hill, V. R.	136	1	1.00
Hill, V. R.	137	1	1.00
Hill, V. R.	138	1	1.00
Hill, V. R.	139	1	1.00
Hill, V. R.	140	1	1.00
Hill, V. R.	141	1	1.00
Hill, V. R.	142	1	1.00
Hill, V. R.	143	1	1.00
Hill, V. R.	144	1	1.00
Hill, V. R.	145	1	1.00
Hill, V. R.	146	1	1.00
Hill, V. R.	147	1	1.00
Hill, V. R.	148	1	1.00
Hill, V. R.	149	1	1.00
Hill, V. R.	150	1	1.00
Hill, V. R.	151	1	1.00
Hill, V. R.	152	1	1.00
Hill, V. R.	153	1	1.00
Hill, V. R.	154	1	1.00
Hill, V. R.	155	1	1.00
Hill, V. R.	156	1	1.00
Hill, V. R.	157	1	1.00
Hill, V. R.	158	1	1.00
Hill, V. R.	159	1	1.00
Hill, V. R.	160	1	1.00
Hill, V. R.	161	1	1.00
Hill, V. R.	162	1	1.00
Hill, V. R.	163	1	1.00
Hill, V. R.	164	1	1.00
Hill, V. R.	165	1	1.00
Hill, V. R.	166	1	1.00
Hill, V. R.	167	1	1.00
Hill, V. R.	168	1	1.00
Hill, V. R.	169	1	1.00
Hill, V. R.	170	1	1.00
Hill, V. R.	171	1	1.00
Hill, V. R.	172	1	1.00
Hill, V. R.	173	1	1.00
Hill, V. R.	174	1	1.00
Hill, V. R.	175	1	1.00
Hill, V. R.	176	1	1.00
Hill, V. R.	177	1	1.00
Hill, V. R.	178	1	1.00
Hill, V. R.	179	1	1.00
Hill, V. R.	180	1	1.00
Hill, V. R.	181	1	1.00
Hill, V. R.	182	1	1.00
Hill, V. R.	183	1	1.00
Hill, V. R.	184	1	1.00
Hill, V. R.	185	1	1.00
Hill, V. R.	186	1	1.00
Hill, V. R.	187	1	1.00
Hill, V. R.	188	1	1.00
Hill, V. R.	189	1	1.00
Hill, V. R.	190	1	1.00
Hill, V. R.	191	1	1.00
Hill, V. R.	192	1	1.00
Hill, V. R.	193	1	1.00
Hill, V. R.	194	1	1.00
Hill, V. R.	195	1	1.00
Hill, V. R.	196	1	1.00
Hill, V. R.	197	1	1.00
Hill, V. R.	198	1	1.00
Hill, V. R.	199	1	1.00
Hill, V. R.	200	1	1.00

Any stock upon which said assessment shall remain unpaid on the twenty-second day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fourth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. SIEVERS, Secretary.
Office, No. 314 Front street, San Francisco. jan4

Mount Tenaba Silver Mining Company.—Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1868, an assessment of two dollars and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 514 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 624 Montgomery street, San Francisco. jan4

P. S.—An allowance on the above assessment of three per cent. will be made on all payments prior to the 31st inst. By order of the Board of Trustees.

By order of the Board of Trustees.

Jan 11

R. N. VAN BRUNT, Secretary.

Office, No. 523 Kearny street, San Francisco, Cal. dec23

POSTPONEMENT.—The above sale is hereby postponed until Wednesday, the twenty-ninth day of January, 1868, at the same hour and place. By order of the Board of Trustees.

Jan 18

R. THOMPSON, Secretary.

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth (12th) day of December, 1867, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, Montgomery street, near Jackson, San Francisco, or to John H. Slaven, at Silver Mountain.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the sixteenth day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. dec21

Lady Bell Copper Mining Company, Low Divide Mining District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of January, 1868, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to J. K. Johnson, at Crescent City.

Any stock upon which said assessment shall remain unpaid on the twentieth day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

B. P. WILKINS, Secretary.
Office, 618 Market street, San Francisco, Cal. jan1

POSTPONEMENTS AND ALTERATIONS.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at the earliest convenience. New advertisements should be handed in as early as possible.

Lyon Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-seventh day of November, 1867, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Fargue	33	3	\$1.00
D. Lee	33	3	1.00
J. W. Loker	42	1	.50
R. Boran	61	16	8.35
John Fargue	32	3	1.50
Chas. S. Lord	40	25	12.50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of November, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., auctioneers, 418 Montgomery street, San Francisco, Cal., on the seventeenth day of January, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.

Office, No. 5 Government House, corner Washington and Sansome streets, San Francisco, California. jan4

POSTPONEMENT.—The above sale is hereby postponed until Monday, the 27th day of January, 1868, at the same hour and place. By order of the Board of Trustees.

Jan 18

J. M. BUFFINGTON, Secretary.

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of January, 1868, an assessment of two dollars and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 514 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the first day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the seventh day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. SIEVERS, Secretary.

Office, No. 314 Front street, San Francisco. jan4

Mount Tenaba Silver Mining Company.—Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1868, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 426 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twentieth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 624 Montgomery street, San Francisco. jan4

P. S.—An allowance on the above assessment of three per cent. will be made on all payments prior to the 31st inst. By order of the Board of Trustees.

By order of the Board of Trustees.

Jan 11

R. N. VAN BRUNT, Secretary.

Neutra Senora de Guadalupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of January, 1868, an assessment (No. 30) of one dollar (\$1) per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. PFEIFFER, at the office, No. 210 Post street, or to the Treasurer, A. H. WILKINS, at his office, No. 637 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the third day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, Cal. jan11

Old Colony Silver Mining Company.—Location of Works: Austin, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of December, 1867, an assessment of two dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 523 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY O. HOWARD, Secretary.

Office, 523 Montgomery street, San Francisco. dec21

Oxford Betts Tunnel and Mining Company, Esmeralda District and County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighteenth day of November, 1867, an assessment (No. 25) of fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, or to the Superintendent at the mine.

Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of December, 1867, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of January, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. H. PECK, Secretary.

Office, 212 Clay street, San Francisco. no23

POSTPONEMENT.—The day for doing stock delinquent on the above assessment is hereby postponed until the twenty-ninth day of January, 1868, and the sale thereof until Wednesday, the twelfth day of February, 1868. By order of the Board of Trustees.

dec23

GEO. H. PECK, Secretary.

Rippon Gold and Silver Mining Company.—Location of Works: Silver Mountain Mining District, Alpine County, State of California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventeenth day of December, 1867, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable forthwith, in United States gold and silver coin, to the Secretary, No. 57 Stevenson street, between First and Second streets, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-second day of January, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the eighth day of February, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

P. CARROLL, Secretary.

Office, No. 57 Stevenson street, between First and Second, San Francisco. dec21

San Francisco and Castle Dome Mining Company. Location of Works: Castle Dome Conny, Arizona Territory.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twentieth day of November, 1867

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have been constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is drawn to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp to constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mull men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Works Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, This Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works.
San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

—BY—

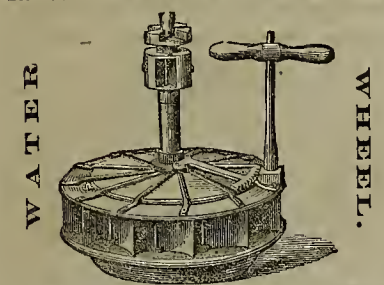
WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
San Francisco.

DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND PLACER MINERS, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address
Dr. J. B. BEERS, San Francisco,
Per Wells, Fargo & Co's Express.

11v15 6m

LEFFEL'S
American Double Turbine

THESE WHEELS, UNEQUALLED AND UNRIVALED in the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc., etc.

CALIFORNIA REFERENCES.—E. Stockton, Folsom; O. Simmons, Oakland; Mill at Clear Lake; Moran, Coyote, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular to
KNAPP & GRANT,
Agents for California.

26v13-1yq

310 Washington street, San Francisco

NOTICE TO MERCHANTS
AND
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working, as goods require no sliding or landing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction hoist, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.

By Joseph Moore, President.

21v15 1f

JOSEPH MOORE.

HUNGERFORD'S
Improved Concentrators.

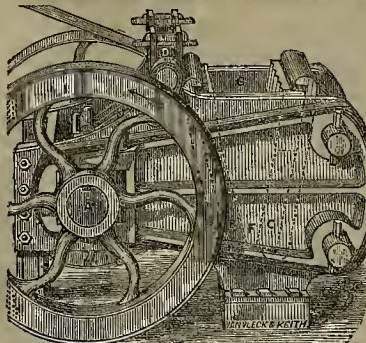
MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 1f

MORGAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, per hour, \$600
No. 2.—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour, price, per hour, \$50
No. 3.—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour, price, per hour, \$1,200

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 23, 1866.
JAMES BRODIE, Esq., San Francisco—My Dear Sir: I give you pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
R. P. JOHNSON,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desirous of compromising, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California, and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

For further information, apply to M. & A. WILCOX, Proprietors, No. 19 Front Street, between I & S Sts., Sacramento, Cal.

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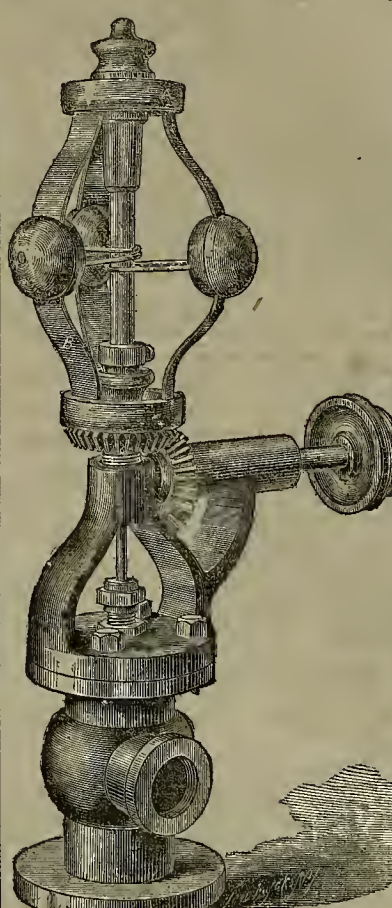
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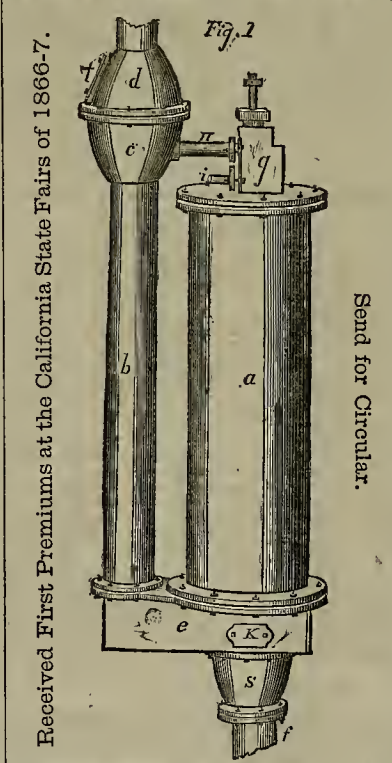
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Patent Steam Water Lifter.

Received First Premiums at the California State Fairs of 1866-7.

Send for Circular.

A Steam Pump without Engine, Piston, Plunger or Buckets, using both the expansive and exhaust power of steam, and doing more work with the same amount of fuel, than any other Pump driven by steam power. It is applicable to either lighter or heavy work, whether for mining, irrigation, or other purposes. It has been used of various capacities, from 50 to 40,000 gallons per hour, and can be made of any size required. It is not injured by sandy or muddy water. In light of lift it is limited only by the strength of the boiler used.

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Gold Beating.

The origin of the art of gold beating, says the N. Y. Post, is not known, but it seems to be of some antiquity. It was known in Greece, and is mentioned by Homer. The ancient Peruvians made very thin sheets of gold and nailed them together on the walls of their temples. On the coffins of the Theban mummies, specimens of original leaf are met with where the gold is in so thin a state that it resembles modern gilding. The art seems to have been practiced in India, as there are rude specimens of gilding at Tipoo Sahib's palace at Bangalore.

The thickness of the leaf is spoken of by Martial as like a vapor, and by Lucretius it is compared to a spider's web. From a description by Pliny of Roman gilding, the thinness of the leaf bore no comparison with that of the modern gold beater. By his account, an ounce of gold was made into 750 leaves, each four fingers square. This is about three times the thickness of the leaf now in common use; but some qualities are so thin that two hundred and ninety thousand sheets make a pile only one inch in height; and specimens have been made only 1-376,500ths of an inch in thickness, which is 1,200 times thinner than ordinary printing paper. The thinnest gold leaf of French manufacture is not thicker than the 480,000th part of an inch; that of the English is about the 300,000th part. The American gold beaters claim to have attained a perfection in the art rivaling the best of either the English or French manufacture.

In the last stages of the operation of gold beating, when the gold has become very thin, an exceedingly fine membranous substance is used between the leaves, which is said to be made of the intestines of oxen. This is called gold-beater's skin. The manufacture of this article is a secret which, it is said, only five men in the world now know. The art of preparing it has brought a fortune to the manufacturers. Wickstead, of London, attained the highest perfection in the art in the last generation, and promised to leave the secret to a relative at his death. In his dying gasp he called the relative to his side to open the mystery, but died, and it still remained a secret. F. Puckridge, of London, is the most celebrated maker now. With great perseverance and expense he succeeded in perfecting the art. He has promised, it is said, to reveal the secret to a nephew.

LOOKING TO THE PACIFIC.—There were upwards of 15,000 more persons who came to the State seaward last year, than left by steamers. At least 1,000 must have come overland, very few departing in the same way. Sixteen thousand persons is a comfortable gain to the population of the State. It is a great advance over the former year, when the gain from all sources of immigration could not have exceeded 5,000—and better yet as compared with 1865, when the loss was set down at 3,780. There are many indications that the accessions will be larger this year than last. Not the least of these is, that more people are interested in this coast than ever before, excepting perhaps during the height of the "gold fever." People are looking toward the Pacific in sober earnest. Prejudices have been dissipated, mischievous errors corrected, and there is now more accurate knowledge concerning our resources than at any former period. * * * The tendency of Californians to return to the States has often been deprecated. But somehow they don't stay there. It is unreasonable to suppose that at least one visit should not be made in a lifetime, to the old homestead. But for each Californian who is planning a visit eastward, something like a half a dozen of his friends are quietly arranging for a visit to this State.

Of course the Pacific Railroad has quickened this interest. The hearts of a multitude of people, who have friends here, follow this iron way. It is the great emigrant trail of modern times. A good railroad has never yet failed to centralize population. What will the Continental Railroad yet do in this respect for California? And what will the three roads yet to be built do for the whole coast? This growing public interest in all that pertains to this State, is to be hailed as one of the most auspicious signs of future prosperity. There are towns to be built, roads to be constructed and fields to be sown and reaped by thousands who have not yet seen these shores, but whose interests have been so enlisted that they can work out their destiny nowhere else.—Bulletin.

It is a rule of the Prussian Board of Trade that every fifth wheel in a railway train must have a brake.

100,000 Lives Lost Yearly from the Use of Tobacco.

SAVE YOUR LIFE, SAVE YOUR MONEY, AND RESIST THE TEMPTATION OF THE DEVIL. DR. L. M. BYRNE'S ANTIDOTE FOR TOBACCO. This is not a substitute, but a cure for Chewing, Smoking and Snuff-taking. Fifty cents per package, sent on receipt of money. Address TRAYER & CO., 32 Merchants' Exchange, San Francisco. 2v15-3m

STUPENDOUS RAILROAD CONSOLIDATION. The Chicago Journal says:—There is a rumor in railroad circles that a grand consolidation, under one management, of connecting railroads between New York and the Pacific Ocean is probable. Commodore Vanderbilt, the railway king of New York, and Hon. William B. Ogden, the railway king of Chicago, and their friends, are said to be negotiating for the joint control of the Hudson River and Harlem railroads, the New York and Erie, the Lake Shore lines from Buffalo to Toledo, the Michigan Southern, all the branches of the Chicago and Northwestern, and the Union Pacific Railroads, all to be consolidated under one management, and to be operated as a common interest. We give the rumor for what it is worth, without any positive knowledge as to its truth. Should the rumor prove correct and the consolidation be effected, it would be one of the most stupendous powers in the world, as far as extent of capital and operations is concerned.

ST. LOUIS IN DANGER.—St. Louis is again in danger of becoming an inland town. A careful examination by the city officials, the other day, revealed the fact that the Missouri river, which discharges into the Mississippi some twenty miles above, sends its volume of water at right angles across with such force against the Illinois shore as to have worn it away nearly a mile. There is some danger of the river making a channel through the American bottom, so as to leave St. Louis three miles from the stream. It is proposed to rivet the Illinois shore with stone, where the river impinges, to keep it from wearing away.

ANTIQUITY OF THE WINDMILL.—The screw propeller is probably as old as the windmill; and a windmill of the construction now usually employed is shown in the seventy-seventh proposition of Hero's "Spiritalia," a work written 130 years before the Christian era.

Mineral Land Law Blanks FOR SALE.

We are prepared to furnish any of the following blanks used in securing patents for lands under the National Mineral Land Act of 1866:

- I. Applicants' Declaratory Statement.
- II. Diagram, Description of Diagram and Boundaries, and Notice.
- III. Register's Order for Publication—with Notice.
- IV. Deposition that Notice has been Posted.
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PRICES.—Single blanks, 10 cents; 75 cts per dozen; \$4 per hundred—postage paid.

Pamphlet containing the Law and the Instructions of the General Land Commissioner, post paid, 25 cts. Address DEWEY & CO., Mining and Scientific Press, San Francisco.

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.

PARTIES WISHING TO PURCHASE WILL SAVE 50 percent by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco. 21v15-3m

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MOLDERS' TOOLS,**
Constantly on hand and for sale at low prices, by
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Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 22v15-3m

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**A FULL ASSORTMENT OF
TWIST DRILLS,**
At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)
—ALSO—
Steam Gauges, a general assortment of Hardware, Cutlery, and
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FOR ABOLISHING PAIN—THE BEST REMEDY IN existence for Rheumatism, Neuralgia, Paralysis, Headache, Toothache, Sore Throat, Diphtheria, Weak, Swollen and Stiff Joints, Contracted Cords and Muscles, Cramps, Colic, Diarrhea, Cholera, Pains in the Breast, Lamé Back, and all aches and pains. It is the poor man's friend, and the best family physician. Full directions accompany each bottle. Price 50 cents and \$1 per bottle. For sale by all dealers in medicines. Sole Proprietors, A. McBOYLE & CO., Druggists and Chemists, 554 Sacramento street, opposite What Cheer House, San Francisco. 19v11-ly

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M PRAG IS NOW PREPARED TO MANUFACTURE hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for the branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
M. PRAG,
8v13-ly Stove Store, No. 125 Clay street, below Davis.

A Book for Every Miner and Scientific Man.

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CONCENTRATION**

Of all kinds of Ores, and the
CHLORINATION PROCESS,
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SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;
With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

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With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 21v15f

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Acetic Acid,
Acids Chemically Pure,
Nitrate of Silver,
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AND CHEMICALS OF ALL KINDS,**
Manufactured by the PACIFIC CHEMICAL WORKS,
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PRESERVED COFFEE.
PREPARED FROM

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Condensed in the form of a Paste, by a process patented September 3d, 1867. One ounce equal to two of the best Ground Coffee, and suitable for any gentleman's table. Preserves its strength and flavor without deterioration in any climate, and without regard to length of time. If you want Chicory, apply it yourself. Give our Coffee a trial, and if it is not fifty per cent. cheaper and better than any other, we will return your money.

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No. 10 Stevenson street, near First, San Francisco. 24v15-3m

TO SPORTSMEN.



THE UNDERSIGNED, HAVING BEEN APPOINTED Sole Agent for the Pacific Coast for the sale of ROPER'S BREECH-LOADING SHOT GUN, which discharges four shots in two seconds, circulars will be furnished by applying to or addressing
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Or Look Box 1172 P. O., San Francisco.

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Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House free of charge, and to any part of the city for 50 cents.
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Work.—We would specially call the attention of Mill owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.
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Is composed of India-rubber and other gums, dissolved in pure linseed oil, mixed with the various coloring matters, and ground in any color. We paint Wood, Brick, Metal, Cloth, etc. It is a superior Marine Paint. Will not rot, peel, blister or crack in any climate. Fifteen hundred Fishing Vessels at Gloucester, Mass., use it as a superior to other paints. We refer to Steamers America, Senator, Paul Fry, Julia, etc., and W. K. Van Allen, S. C. Bugbee & Son, Tubbs & Co., C. W. Thomas, Sidney Johnson, Dr. Heuston, Ceu. Connor, Stockton, H. L. Davis, Jas. Lick, J. P. Pierce, Esqs., and others. Filbert Street School House, two coats on redwood, equal to three coats lead. One hundred pounds paint equal in bulk to two hundred pounds lead. Cementing and painting new or old Tin or Metal Roofs. We first cement around fire walls and skylights all holes and cracks, then apply a good coat of paint. A good, clean, tight roof is certain. Price, from one to three cents per square foot, according to size and condition of roof.
New Cloth Roofs put on, saturated with liquid rubber; then painted at nine cents per square foot. We use none but the best materials and pure linseed oil. No lead turpentine; neither asphaltum or coal tar.
Also, for sale, "Submarine Rubber Varnish," \$5 per gallon; any color. We will apply to Vessels' Bottoms, or furnish at \$5 per gallon. 23v15f

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Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, if desired, by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.
Consignments of Gold and Silver Ores solicited.
Refining of Bullion at usual rates.
Agents for Ed. Balbach's Improved Process for Separating Silver and Gold from Lead. 25v15-3m

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ASSAY AND BULLION BALANCES,
And from France and Germany, as well as the Eastern States, FURNACES, CRUCIBLES, MUFFLES, BLOW-PIPE CASES, GOLD SCALES, CHEMICAL GLASSWARE, and every article required for ASSAY OFFICES, LABORATORIES, etc. We have given this branch of our business particular attention, to select such articles as are necessary in the development of the mineral wealth of this coast.
A Full Assortment of DRUGGISTS' GLASSWARE and DRUGGISTS' SUNDRIES, ACIDS and CHEMICALS, constantly on hand.
San Francisco March 6, 1885. 11v10-4f

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SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF Ores, Minerals, Clays, Waters, and General Commercial Products of all kinds.
Tests of Gold, Silver, Copper and Lead Ores, by Smelting, in quantities of fifty pounds to five, ten or fifty tons.
Consignments of Ores solicited.
Refining of Bullion at usual rates.
Founders and Metal Workers furnished with alloys of every description.
Parties requiring plans and specifications for the erection of Smelting Works, can be supplied, and the actual process while working shown.
Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical Products.
Superintendent, Mr. WILLIAM WEST, formerly of Swansea, Wales.
For engagements and terms, apply at the office of SECOR, SWAN & CO., 65 Broadway, Postoffice Box 1412. 18v15-6m

Just Published.

THE PHILOSOPHY OF MARRIAGE, BEING FOUR IMPORTANT Lectures on FUNCTIONS and DISORDERS of the Nervous System and Reproductive Organs, to be had by addressing and inclosing twenty-five cents, postage stamps, to Secretary PACIFIC MUSEUM OF ANATOMY, Montgomery street, San Francisco. 21v13-ly

Manzanita Pipes!
WHOLESALE AND RETAIL.—SALESROOM, NO. 55 Third street, near Mission. Factory, No. 10 Stevenson street, near First, San Francisco. These Pipes are manufactured from the best Mountain Manzanita, as sweet as Meerschaum.
21v15-3m JACKSON & SPAULDING.

The "Live Yankee Furnace," Colorado.

There appears to have been quite a brisk controversy going on for some time past, in Colorado, between the respective proprietors of what is known as the Bruckner Furnace, recently patented by Reese, Krauss & Bruckner, and a similar one known as the "Live Yankee Furnace." The paragraph which we gave with regard to the latter, and which has come back to us, as given below, from the aggrieved party, should have been credited to a correspondent of the Colorado Times, instead of to that paper as editorial.

It is proper to say that the letter from which that paragraph is extracted was evidently written by an interested party, and should consequently be taken with many grains of allowance. We publish the following with pleasure:

CENTRAL CITY, Col., Dec. 30th, 1867.

EDITORS PRESS: The subjoined paragraph from your paper of Dec. 7th, having attracted our attention, we beg to make a correction of the impression you seem to have concerning our furnace:

The Live Yankee furnace seems to have proven a failure. There were furnished to them two tons of ore from the celebrated Young America lode, assaying \$133 per ton. It was handled in such a wretched way that the bullion obtained was only .230 fine. One bar, weighing 131½ ozs. troy, was refined by cupellation, and yielded 26 ozs. of fine silver. A little more than 50 per cent. of the silver was obtained. Next a lot of rich ore from the White lode was tried.—Times.

This is a portion of a letter written to the Times by the manager of Garrett, Martine & Co's works at Georgetown, and was signed by him, Chas. A. Martine; still you seem to give it as editorial of the Times. The facts are that we are about to erect works at Georgetown for operation next season, and as Martine & Co. now charge about \$100 per ton for treating ores, they are of course jealous of the prospect of works being put up under their nose of twenty tons capacity per day, which will treat ores for a merely nominal price, say \$30 per ton.

This, gentlemen, are the true facts in the case, and in order to further assure you, we enclose a copy of Mr. Martine's letter. We ask no favors at your hands, but simply justice. As we are unacquainted in your section, we inquired of Dr. A. Blatchly, who is now here, and he assures us that you will make the necessary correction. He has examined our furnace and pronounces it far superior to anything of the kind now in use here. Begging your indulgence for this molestation, we remain, yours truly,
GALLUR, CASHMAN & FARRELL.

FAREWELL CONCERT.—The farewell concert, given at Platt's Hall on Thursday night, by Mme. Stella Bonheur, attracted a crowded and most brilliant audience. That gifted child of song may well feel highly gratified by such a parting complimentary tribute from her San Francisco friends. Her extraordinary power and compass of voice was never displayed to better advantage or more highly appreciated. Signor Bianchi and Signorina Bellini sustained their parts most admirably, as, in fact, did each and all of the distinguished vocalists who took a part in this interesting musical entertainment. The instrumental portion of the programme was also of the highest order, and was a most fitting accompaniment to the vocal display.

CALIFORNIA ACADEMY OF SCIENCES.—The adjourned annual meeting of the Academy was held at Rooms No. 622 Clay street, on Monday evening last. The following gentlemen were elected officers for the year: President, J. D. Whitney; Vice President, James Blake, M.D.; Corresponding Secretary, H. N. Bolander; Recording Secretary, Theodore Bradley; Treasurer, Edward Bosqui; Librarian, A. Kellogg, M.D.; Director of Museum, Robert E. C. Stearns. Prior to the election, a new constitution was adopted. Several letters were read from foreign societies, requesting the Academy to exchange its publications with them; after which, the Academy adjourned. The next meeting will be held on next Monday evening, when some interesting papers will be read.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

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After an careful and thorough perusal of the same as it contains, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—Wm. H. Hill.

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—F. W. Hatch.

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I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—Martin Kellogg.

I recommend it to all those who wish to obtain a book that will give them definite ideas on this subject, and teach them to express their thoughts and feelings in a clear, simple, and forcible manner.—Caroline L. Atwood.

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I believe the work will be a valuable and much needed addition to our school text-books.—Herman Ferry.

You have brought the results of a profound analysis, and made them available, in a practical form.—I. H. Drayton.

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and as advocates at the forum.—John Curry.

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. * * * It will soon become a necessity in every lawyer's library.—Charles A. Tuttle.

Its clearness and comprehensiveness make it easy.—G. W. Loring.

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end. He seeks to teach the student not only how to like sentences apart, but how to construct them. His system has the merit of originality. We know of no work in which can be obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Layres has done the cause of popular education good service.—S. F. Bulletin.

This is a San Francisco book by a San Francisco author. It contains its place in the literature of the city. It is a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—Atlas California.

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The most eminent educators in California give their hearty approval, and we concur.—Marysville Appeal.

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SAN FRANCISCO, SATURDAY, JANUARY 25, 1868.

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Avery's Pump and Well.

The main feature in this invention consists in the appliances for sinking the well. The principle is as follows: A tube of iron is made pointed and closed at the lower end, perforated with a number of holes near the lower extremity. In order to drive the tube into the earth, a pointed iron slug is inserted; the tube is then forced into the ground either by the pile-driving process or by turning, as an augur, under pressure. The plug prevents the filling up of the



tube with sand or mud. When the tube has been driven the desired depth, it is withdrawn about six inches, sufficiently to allow the free ingress of water through the small holes near the extremity of the same, as well as through the narrow annular opening around the shoulder of the plug. If it should be subsequently found necessary or desirable to sink the pump lower, it can readily be done, as will be apparent from an examination of the illustration annexed.

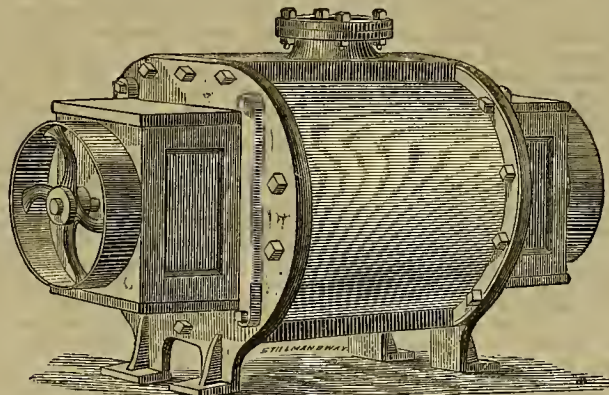
The position and use of this plug will be seen by referring to Fig. 1 in the engraving. By close observation it will be seen that the lower valve of the pump is protected from the intrusion of foreign sub-

stances which would interfere with the working of the valve, by an oblong iron strainer projecting downward. The water is of course drawn from the surrounding earth by the creation of a vacuum by the action of the pump.

When the tube is driven to the desired depth, the pump rods and valves can be readily placed in the same, and withdrawn at any time for repairs or adjustment if necessary. The valves are extremely simple, consisting of metal balls, with no packing to get out of order. This is the only pump that digs its own well. A well thirty or fifty feet deep may be dug and put in working order by means of this ap-

Root's Force Blast Rotary Blower.

All foundrymen and iron workers generally are impressed with the importance of a good, effective and durable machine for producing a blast for foundries and kindred purposes, one which can be made at a moderate cost. The most common machine heretofore employed has been that of the rotary form, devised with various modifications. The great drawback to this method of obtaining a blast arises from the fact that great speed is essential to effective work, thereby engendering much friction, and wear and tear, and a large expenditure of power. Cylinders working on the princi-



ROOT'S FORCE BLAST ROTARY BLOWER.—Fig. 1.

paratus in a few minutes, or a few hours at most, according to the nature of the ground. The cost of the same is but a trifle compared with the ordinarily tedious process of well sinking. The cost of both well and pump is but a little more than the cost of the pump alone. For the first few minutes after setting the pump in motion, the water comes up largely mixed with earth or sand. As soon, however, as a small open space is formed around the bottom of the pump, pure water is raised, and continues so to flow as long as the pump is operated, or the water stands in the surrounding earth above the level of the bottom of the pump.

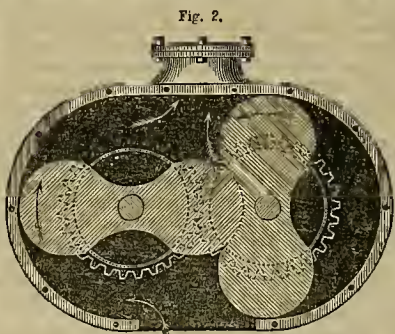
Fig. 2 exhibits a peculiar mechanism of pump machinery, which is moved by a double cog-wheel and spring. A reciprocating action is imparted, which secures a continuous stream and easy action.

This pump has recently been introduced into England, where it is known as the "American Tube Well." A trial was recently made near Manchester; the tube was sunk and water reached in five minutes from the commencement of the operation of sinking. This apparatus was used by our armies in the late war, and was often found a very valuable aid in the procurement of water as the camps were moved from place to place. S. P. Roberts, at 318 Pine street, is the agent for California and Nevada.

PUSHING AHEAD.—Charles Crocker, Superintendent of the Pacific Railroad, advertises for proposals to transport 2,000 tons of iron from Cisco to Coburn's station within the next ninety days. There is good sleighing all the way.

ple of the air pump have also been employed to some extent; but their use has never become general.

A great desideratum in blowers is their capacity to give a positive blast—measuring and forcing forward a definite quantity of air each revolution. Such a result cannot be obtained by the fan, but is obtained by a cylinder and piston. Some few years since, Messrs. P. H. & F. M. Roots, of Conners-



ville, Indiana, introduced what they have styled a Force Blast Rotary Blower, which exactly meets the requirements of a positive force blast, without the use of a reciprocating motion. We have hereto appended two illustrations of this invention, Fig. 1 showing a perspective view of the machine ready for work; and Fig. 2 exhibiting a cross section which give an intelligible idea of the manner in which the blast is generated and measured. The external case of these blowers is made of cast iron, and carefully bored out, so as to make with the

rotating valves air-tight joints. In both their external and internal parts, these blowers are fitted up with all the accuracy of a steam engine. These rollers are generally driven by two pulleys, one on either end of the main shaft; as the valves rotate towards each other, as will be seen by the direction of the arrow on the valves in Fig. 2, one of the belts must be crossed and the other opened. The position of the driving pulleys is seen in Fig. 1.

The construction of this machine is such that the same pressure of air in the blast may be obtained at a speed of 250 or 300 revolutions a minute, which in the fan blower, is attainable only by five or six times that speed. The reduction in friction and power is therefore a most important item. We have before us a large number of testimonials from those who have used this blower in the Eastern States, who testify that with the use of this blower, they are able to melt a given amount of iron by the use of one one-half less power in producing the blast, than is required by the ordinary fan blower; while the time, and consequently the fuel employed, is also very largely reduced. The friction of the machine in the machine itself in its operation, is so light that nearly the whole power applied to it, is spent in forcing the blast forward. The low speed which is required, and the simplicity of its parts renders it exceedingly durable. The first machine put up after the patent was allowed, is still in operation at Covington, Ky., still operative to all appearance as when it was first started—some six years ago.

This blower is also especially applicable to blacksmiths' fires. A No. 2 blower, running at sixty revolutions, will supply a blast for three fires; the same blower, at three hundred revolutions, will furnish a blast for twenty fires. From fifteen to twenty revolutions per minute seems to be the requirement for a single fire. The first premium was awarded to this blower at the late Paris Exposition.

There is another important consideration in the use of this blower. The smelter, by knowing the size of his furnace, can calculate, almost to a fraction, the number of cubic feet of air he needs to effect the perfect combustion of the fuel he is using; and with this blower he can measure that air out to his furnace by regulating the speed of his blower as accurately as gas is measured in a gas meter.

It is thought by many that there cannot be too much blast. That is a mistake. Combustion cannot proceed beyond a certain rate. There is indeed a considerable range; but there is a limit, easily attainable, beyond which any additional air is detrimental—any excess of air only absorbing the heat and conveying it away from the metal to be heated, thereby lessening the quantity of iron which may be melted by a given quantity of coal, supplied with its appropriate quantity of oxygen. Circulars will be forwarded by the agents, giving certain definite rules, by which the size of blower and speed of the same may be accurately adjusted to the size of furnace employed and quantity of iron which it is desired to melt. Such considerations as these will be found important matters of economy in foundry work, and may be made to effect a loss or saving in casting of from one to one and a half, or even two cents, per pound of iron melted.

One of these blowers may be seen at W. T. Garratt's Brass Foundry, on Fremont street; at the Etna Iron Works; at the Almaden Quicksilver mine, and at many other places in this State. For further information and circulars, address Keep, Blake & Co., Globe Iron Works, Stockton, Cal.

Salt Spring Valley and the Adjacent Region in Calaveras County.

(Read before the California Academy of Natural Sciences, December 16, 1887, by W. A. Goodyear, Ph. B., Civil and Mining Engineer.)

Having spent some time during the past summer in Copperopolis, and the region lying west and northwest from it, I offer the following observations respecting its topography and geology. I will first notice the

TOPOGRAPHY.

For a general description of the topography, etc., of Calaveras County, including the main features of the region in question, reference may be made to Prof. J. D. Whitney's Report upon the Geology of California, vol. I, p. 253. In addition, however, to what is there stated, I will say that Copperopolis lies at the southwestern base of Bear Mountain, the summit of which rises to an altitude of something more than 2,000 feet above the sea. The Gopher Hills, also mentioned in the report, form a well defined and connected, though subordinate range, lying to the southwest of and nearly parallel with the general course of Bear Mountain. This range forms a prominent feature in the topography of the region for a distance of at least fifteen or eighteen miles southeasterly from the Calaveras river. Its summits are probably 1,400 feet above the sea, and the lowest break or gap within the distance named is that through which Rock creek finds its way to the plains below. The valley or depression between the Gopher Hills and Bear Mountain, whose average width is four to six miles, has received the name of Salt Spring Valley. Its general altitude is little less than 1,000 feet above the sea, that of the town of Copperopolis being 900 feet, according to H. P. Handy's survey of a railroad route from Copperopolis to Stockton. I should mention that for several miles northwesterly from Copperopolis, Bear Mountain has an outlier along its southwestern base, in the form of a low but tolerably well-marked hilly ridge, between which and the base of the mountain is a narrow but continuous valley; and it is in this valley that the copper-bearing belt of Copperopolis is found. Southwest of this outlier, and for a distance of three or four miles northwesterly from Copperopolis, Salt Spring Valley consists mainly of a region of low hills, traversed by a network of steep and narrow gulches. Farther northwest the surface of the valley for three or four miles is more uniform, and here we find the nearly level area of "Tower's Ranch," and the gently sloping basin of the "Salt Spring Valley reservoir." Beyond this, the country is again hilly to the Calaveras river. Southeast and south of Copperopolis, the surface is everywhere hilly. The slope of the Gopher Hills towards the southwest is rapid until we reach the low rolling country which forms the border of the San Joaquin Valley.

Black Creek débouches from Bear Mountain a mile or so southeast of Copperopolis, and flows to the Stanislaus. Littlejohn's Creek takes its rise in the hilly region of the valley west of Copperopolis, and flowing southwesterly, finds its way through the hills into Rock Creek. The latter rises in Bear Mountain, five or six miles northwesterly from Copperopolis, and flowing southwest across Salt Spring Valley, breaks through the Gopher Hills, and continues its course through the lower country to French Camp Slough, a branch of the San Joaquin. All these creeks become dry in the summer, though in the winter they often carry very large volumes of water. At the point where Rock Creek breaks through the Gopher Hills is the substantial dam of the Salt Spring Valley Reservoir.

GEOLOGY.

The strike and dip of the rocks are more or less variable; but, so far as my observations extend in the region described, they have everywhere the same general north-

westerly trend and high northeasterly dip which characterizes so large a portion of the gold-bearing slates of central California. The strike is usually from N. 50° W. to N. 70° W. (magnetic), and the dip from 50° northeast to vertical. I have seen no case here of a decided southwesterly dip, nor of a low one to the northeast. It is somewhat remarkable, by the way, that this high northeasterly dip should be so general as it is in the great mass of auriferous slates which forms the southwestern flank of the Sierra Nevada. It is towards the granite axis of the chain, instead of from it, as would seem more natural. The causes of this are by no means as yet fully explained. It is a circumstance, however, which would lose none of its interest in the future, if, as certain facts mentioned in the Geological Report, Vol. I, p. 286, might possibly seem to indicate, further explorations should prove it to be in general a great inversion of the strata—their upper portions having been "forced back by immense pressure from above, producing a condition of things similar to that so often observed in the Alps, which is known as the 'fan-structure,' and has so much perplexed geologists." When we take into account the enormous denudation, amounting to thousands of feet in perpendicular depth, which is known to have taken place in the Sierras within the most recent geological periods, and the whole of which, in this case, must also have belonged to the inverted portion of the strata—unless indeed the inversion were produced by a peculiar sliding and bending of the strata by their own weight, the upper flexure having been since entirely removed,—and when, in addition to this we consider the hundreds of miles in length, and the great thickness of the strata in question, we can perhaps begin to appreciate the magnitude of the movements and forces which would be involved in producing such an effect. It would indeed, if true, be a striking illustration of the grandeur of the scale upon which many of the physical features of this country have been cast, as compared with those of other and better known regions. But it is hardly worth while to speculate further upon probabilities like this in the present state of our knowledge, and I return to my subject.

In Salt Spring Valley, the rocks consist almost entirely of slates, with little variety of character, generally thin-bedded, fine-grained and argillaceous, sometimes magnesian or chloritic, and often splitting with facility into very thin sheets. The thinnest bedded varieties are usually fragile, and the structure is often wavy; but sometimes the cleavage is regular and thin enough, and the rock possesses sufficient strength to furnish a tolerable material for roofing purposes; although no attempts have been made, so far as I know, to thus apply it;—and, in fact, the expense attendant upon its excavation and transportation would preclude any extensive use of it, even if its quality were unsurpassed, which it is not.

The earthy covering of the rocks throughout the valley is usually very shallow and the soil poor (Tower's ranch is, however, an exception), and in many places the thin, sharp edges of the slates project in such a way as to form an exceedingly jagged surface, though the projections are low, generally not exceeding two or three feet in height. Much of the surface is strewn with float quartz, usually in the shape of small, but partially rounded pebbles. Quartz veins of small or moderate size, parallel with the stratification, are not uncommon. Iron pyrites is of frequent occurrence, with a little gold in the quartz. Some of the veins have been more or less worked, but none of them to any great extent. About three or four miles westerly from Copperopolis, in the hilly portion of the valley, is a ten-stamp quartz mill, and a short distance from this, on Littlejohn's Creek, is the site of an older one, which was burned down. Neither of these mills ever yielded much profit, so far as I can learn, nor does the present one seem likely to do so.

Several of the gulches in this vicinity are said to have yielded gold enough in the past to pay for working, although the diggings were not rich or extensive. It is stated also that some years since, in one of these gulches, a quartz boulder was found, weighing about one hundred pounds, which yielded between two and three thousand dollars' worth of gold. There are three or four quartz veins near here, from which more or less rock has been crushed. Portions of the rock from one of these veins, the Winnemucca, a prettily-shaped vein of three to four feet in thickness, are very cellular in structure, and some of it shows fine gold quite freely to the naked eye. The metal, however, must be very irregular in its distribution, or the ore would have

paid better in the mill than the three or four dollars per ton which, I am told, it yielded; and, in fact, the general character of the float quartz of the region, when taken in connection with the probable origin of the valley itself, and the fact that no important placer "diggings" have been found here, does not seem to favor the probability that these quartz veins will ever prove of much value. Between the present mill and the site of the old one, as well as at certain other localities in the valley, are springs containing various alkaline salts, from which the name "Salt Spring Valley" is derived.

Accompanying the copper formation of Copperopolis, and just west of it, is an immense body of serpentine, lying parallel with the general stratification of the slates, and traceable for miles along the valley by the openings made in it in the workings for copper. Opposite a point 1,000 or 1,200 feet northwest of the upper shaft of the Keystone claim, but on the southwest flank of the outlier of Bear Mountain, already noticed, is another heavy mass of serpentine. How far this extends in a northwest and southeast direction I do not know, as I have not followed its line of outcrop, but it is certainly not less than 1,000 feet in length.

[To be Continued.]

PAINE & STEVEN'S CONCENTRATOR.—The Nevada *National* says of this amalgamator, recently patented through this office, that the machine at the Banner mine, Nevada, took the tailings after they had passed through the rockers and 300 feet of sluices, and saved from the debris, which would have run into the creek and have been utterly lost, from seven to eight tons per month, which yielded over \$100 to the ton.

The Nevada *Gazette*, in speaking of the operation of the same machine, says: Some weeks since a machine was put up at the Eureka mill near Grass Valley, the company contracting to pay for the patent if they were satisfied with its work, after a month's trial. They had used it but a week when Mr. Watt informed the inventors that the machine came fully up to the representations of the inventors. The machine at the Eureka is the same size as that at the Banner, but has some improvements, and separated the sulphurets from the tailings of the twenty stamps of the Eureka mill, more effectually than any machine yet used. They are now putting in ten additional stamps at the Eureka, and Mr. Watt is of the opinion that one machine is all that will be needed for the thirty stamps, and one man can easily attend the machine. One of these machines has been in operation several months, at Virginia City, separating the sulphurets from the accumulated tailings of the Gould & Curry mill.

THE NEW FRENCH ARM.—There is at least plausibility in the story that one motive for the French "pitching in" to the Garibaldians near Rome was to test the efficiency of the Chassepot rifle. If those weapons were on trial in that encounter it must be confessed they stood the trial very well. The French lost two men killed and thirty eight wounded; while the loss of the Pontifical troops was small. On the side of GARIBALDI six hundred were killed outright, with the usual proportion wounded. Of course, considering the number engaged, the blow inflicted on the invaders of the Papal territory was terrible.

The description of how the Chassepot worked shows it to be a most effective weapon. A correspondent of one of the journals who witnessed the battle, says the report was so rapid that it sounded like the rumbling down of an alarm clock. The arm was discharged from eight to ten times every minute, and could be fired from twelve to fifteen times when the cartridges were held in the hand. The wounds mostly inflicted at short range, were severe, falling chiefly upon the breast, abdomen, thighs and knees.

FISH CULTURE.—The Eastern people appear to be alive to the necessity for restocking their rivers with food fishes. By experiments made in the Connecticut river, it has been proven that shad-eggs may be hatched in forty hours. A gentleman hatched by artificial means and placed in the river at Holyoke, last season, about fifty millions of young shad, accomplishing the whole work within three weeks and at a trifling expense. The whole country may, therefore, by artificial propagation and railroad facilities, soon enjoy the luxury of fresh shad, and at a moderate price.

A glass globe full of cold water, or even a ball of ice, will, in the sun's rays, act as a burning lens.

Manufacture of Sealing Wax.

Sealing wax, of which the chief ingredient is shellac, first came into general use in Europe about the year 1550. The Spaniards and Portuguese are supposed to have introduced it from India, and it was for a long time known as "Spanish wax." As, however, it contains no wax, this name was most probably transferred to it from some similar material used for the same purpose, the chief ingredient of which was wax. Numerous recipes are given for its preparation, which vary according to the color desired, or the purposes for which it is to be employed.

Mr. E. Prique, an occasional correspondent, has furnished us with some of the most approved recipes, as well as several interesting details in the process of this manufacture, as follows:

1. German method of manufacturing different kinds of red sealing wax of the finest quality: 4 parts shellac, 1 turpentine, 3 cinabar. Another—24 parts shellac, 10 Venice turpentine, $\frac{1}{2}$ Peruvian balsam, 16 einnabar.

Recipes for the more common sorts of red sealing wax: 18 parts shellac, 10 turpentine, 12 cinabar, $\frac{1}{4}$ mastic. Another.—4 parts shellac, 2 colophony, 2 turpentine, 4 cinabar, 3 chalk.

Recipe for the commonest kind: 40 parts colophony, 4 turpentine, 4 brown-red, 48 chalk.

Mode of Proceeding.—The shellac is first melted, either in a copper vessel or in a well glazed earthen pan, at the lowest degree of heat that will be necessary to melt it; at the same time constantly stirring it with a wooden stick. After this the turpentine is added, which has been previously warmed. When all is melted completely together the cinabar is added, or the mixture of cinabar and chalk. The heat must be neither too much nor too little, but just sufficient to allow a most thorough mixing of the different ingredients. When this is accomplished, the fluid mass is discharged into metallic molds and left to cool. The sticks of sealing wax have no polish. To produce this, they have to be heated again on the surface. For this purpose they are put in other molds, made of polished steel, which are engraved with the desired ornaments. These molds are heated only just sufficient to melt the sealing wax on the surface, by which operation the sticks obtain a beautiful glossy appearance.

For the purpose of molting the shellac easier, some add to the same a little alcohol. The heating of the molds to stamp the mark of the manufacturer, can be readily performed with a spirit lamp. To make common sealing wax appear to better advantage, the sticks, being still soft, are dipped in the powder of a better quality, and then superficially melted, so as to produce a thin coating.

2. Yellow sealing wax is made in the same way; but instead of cinabar, chrome-yellow is used. A very cheap one is made as follows: 4 parts white pitch, 2 mastic, 2 sandarac, 1 amber, 1 gum gutti.

3. Blue sealing wax: 16 parts mastic, 4 turpentine, 8 mountain-blue, 3 burned selenite. The mountain blue turns green by the heat of melting the mixture; therefore it is better to use fine indigo—or very fine Prussian blue can be used; but in that case the shellac must be particularly light-colored.

4. Green sealing wax is generally made by a mixture of yellow and indigo, and after the following recipe: 24 parts shellac, 12 mastic, 4 turpentine, 6 verdigris.

5. The best kind of brown sealing wax is made by mixing black and red sealing wax; or as follows: 32 parts shellac, 7 English earth, 3 turpentine.

6. Checkered sealing wax is made by mixing sundry pieces of different colors, to suit the fancy.

7. Gold wax is generally made by taking finely pulverized gold leaf or metal powder, and stirring them into the sealing wax instead of the colors. A common kind is made as follows: 6 parts shellac, 2 white rosin, 1 silver leaves.

8. For black sealing wax: 32 parts fine shellac, 16 bone black, 5 turpentine, $\frac{1}{4}$ storax.

9. Bottling wax, for closing bottles airtight: Melt 2 parts common wax; add 4 parts colophony and 4 parts pitch. When the mixture flows well, the corked bottles are dipped and turned around in the same. It is still better to add to the above mixture 2 parts shellac, which makes it less friable.

10. Soft sealing wax, for diplomas, etc.: 16 parts yellow wax; 3 turpentine, 1 olive oil: after it is melted, the cinabar, or any color is stirred in the compound.

Mechanical.

What is Mechanics?

The term "mechanics" is derived from the Greek word *mekhane*, signifying to contrive, to invent, to construct. It is a science in which are developed the laws of the phenomena attending or produced by means of the action of machines, or resulting from agencies such as are or could be employed in propelling machinery, and are hence termed mechanical. It is a science, having a breadth and scope quite equal to that of any other. To be a thoroughly educated mechanic is to be a scientist of the highest order. There is a class in the world which contemptuously sneers at a mechanic as one engaged in a calling inferior to many others; there is a still larger class which affects to make a broad social distinction between a *professionist* and a mechanical calling.

The primary meaning of profession, as applied to one's calling, embraces whatever business one professes to understand and follow; custom alone has excluded its application from mechanical business, merely to make an unnatural distinction between classes of men. Mechanics, when pursued as a study as well as a labor employment, is as much a learned profession as law, medicine, or philosophy. But what is mechanics? We will allow Professor Warren, of the Rensselaer Polytechnic Institute, of Troy, N. Y., to answer this question:

This is the point on which, without fault of their own, considering the limited instruction in it, and literature belonging to it, hitherto generally accessible in this country, more or less vague and inadequate views often apparently prevail among projectors of science, as well as, in a far greater degree, among many other people otherwise well informed.

But what is mechanics? Mechanics is a vast and splendid body of science, the central and dominant member of the entire body of engineering knowledge; and consisting of the statement, discussion and application of the laws of force. Furthermore, mechanics, thus broadly defined, exists in three successive natural stages, well named Rational Mechanics, Physical Mechanics and Technical Mechanics.

Rational Mechanics is the science of the action and reaction of pure forces, acting directly upon each other, under all possible conditions of intensity, direction and variation, and not acting in and through matter.

Physical Mechanics is the science of the same forces acting in and through matter, and as modified by the properties of matter.

Technical Mechanics, the last and highest stage of the science, is the science of force, considered as acting in and through structures which are assemblages of bodies of definite forms, positions and intended functions. It embraces, therefore, the theory and exact expression of the stability of structures of masonry, wood and metal, as walls, arches, domes and columns; also roofs and bridges of all varieties of design and material, and, in addition, the theory and exact expression of the dynamical efficiency of motors of every kind—locomotive, stationary and marine engines, vertical and horizontal water-wheels, the required or actual strength of boilers of any form or material, the mechanical resources of streams, etc.

All this, only briefly amplified catalogue of particulars, constitutes mechanics, and mechanics is immediately requisite in designing engineering works. Immediately necessary, I say; hence let us pry under and see what is *fundamentally* necessary.

Mechanics is the science of force, acting in space and time.

Force is a species of quantity.

Mathematics is the science of quantity.

Mechanics, therefore, is a branch of concrete mathematics, and of such rank that the problems which it presents are so numerous, and rise to so high a degree of complexity that their resolution demands all the aid which the resources of pure mathematics can furnish.

Such is mechanics, which, we repeat, is the principal member of the body of engineering science, and such the mathematical proficiency which, by inference, the knowledge of it is shown to require. * * *

Such a body of technical thought must now have its appropriate technical language wherein to express itself to those workmen who are to give tangible form to it.

CORRUGATED IRON FOR BOILERS.—Mr.

Richard Montgomery, of New York, has proposed the substitution of corrugated, instead of flat iron for steam boilers. He claims that scale will not be so freely deposited on corrugated as on flat iron, and that the additional advantage of presenting a greater heating surface in the same space will also be attained. He is also of the opinion that any ordinarily hidden defect in the iron, used for boilers, will be more readily detected in the severe test to which it will be applied in the process of corrugation. Iron is corrugated by passing a heated sheet of that metal between heavy fluted rollers. Corrugation adds greatly to its strength or stiffness; hence it is generally used in that form for building purposes. Corrugated boiler iron 3-16ths of an inch thick, has been known to resist a hydrostatic pressure of 160 lbs. without the aid of braces. Mr. Montgomery recently submitted the propriety of the employment of such iron for steam boilers to the Polytechnic branch of the New York American Institute, where it met with a lively and prolonged discussion; the chief objection being that corrugation deprives iron of its elasticity. The members of the Institute were quite divided in opinion with regard to the utility of Mr. Montgomery's proposition.

PLACING OF LARGE STONES BY THE ANCIENTS.—It is usually a matter of wonder to

modern mechanics that the ancients, destitute as they were of complicated machinery, should have been able to transport, raise, and place large stones, whether standing alone or as part of such buildings as the pyramids. The late discoveries at Nineveh fully expound to us the means of transporting large blocks; it was by placing rollers beneath. As to the means of raising, all we learn from Herodotus is, that it was effected by short pieces of wood. How so? The following suggestion in reply was made a few years ago by a gentleman named Perigal, before the British Association: Suppose a block has to be raised up along the pyramid, in order to be placed in one of the courses of masonry. It is brought by rollers to the base of the building. There all the rollers are removed except one near the center. One end of the stone being now depressed to the ground, a pile of slips of wood is placed under it, close to the center, this pile being rather higher than the roller, and terminating in one narrow piece at the top. The stone is now tilted so as to bring the other end to the ground. It is now possible to put a similar pile of pieces of wood underneath, close beside the first. On that pile, the block is tilted back to its former position, and so on till it is raised a little above the level of the next course of masonry. By rollers it is moved on to that platform, with a low pile of blocks once more near the center underneath. Then the process of tilting and raising is again gone through; and so on till it has been raised up to the level where it is to take its place in the masonry. By this simple process, too, says Mr. Perigal, a few men might have raised Stonehenge in a single night, if the requisite stones were prepared and placed in readiness near the spot.

RAILS DIRECT FROM THE ORE.—The *Stan-ton* (Va.) *Spectator* says that the success of the discovery for converting iron ore into cast steel by a single operation in an ordinary blast furnace, is now established beyond controversy. Rails are now cast from the ore, which prove to be cast steel rails of the best quality, flexible, tenacious, adamantine face, and of diamond hardness. It is impossible to calculate the magnitude of the value of this discovery.

FORGING BY PRESSURE.—The applications of this process are daily increasing in number, and in the generality of their employment, especially in England, as we learn from an authority thoroughly conversant with the subject. Thus the hooks and many other parts of differential pulleys are shaped, as also hammers and other similar instruments.

GRINDING with a cast iron wheel at high velocity is a process successfully conducted at many shops, and which has been found to be both economical and efficient.

The *Yorkshire Locomotive Works*, Eng., are announced as capable of building 400 locomotives per annum, or over one a day.

More than 1,000 farm engines are built annually in England.

Scientific Miscellany.

THE MOON NEAR THE HORIZON.—Messrs.

Wilson & Hood, of Philadelphia, have published a stereoscopic diagram, designed by Prof. C. F. Himes, the object of which is to illustrate the cause of the apparent increase in the size of the moon when it is near the horizon. The diagram consists of two figures on one, being a large circle with a smaller one concentrically placed, the other a large circle exactly like the former, having within it, however, two small ones equal and eccentrically placed at an eighth of an inch right and left of the center. When viewed in the stereoscope, this gives the impression of a large circle on the surface of the paper, a small one back of the paper, and a yet smaller one between the paper and the observer. The actual size of these latter circles must be the same, since they are each formed by the union of the small circle of one figure, with one of the small circle of the other; but since the one seems to be further off than the other, we instinctively assign the greater size to that which seems to be farthest off, and yet subtends an equal angle. Thus it is with the moon when near the horizon. Comparison with surrounding objects causes us to assign to it a greater distance, than when it is near the zenith, and thus in turn to consider that it is larger.

A NEW DRIFT THEORY has been proposed, to account for the drift of the glacial epoch, in which it is held that continents have not been depressed, but rather overflowed by the ocean. This theory is founded upon another, recently promulgated, that owing to the precession of the equinoxes the mass of water is transferred from one hemisphere to the other once in about ten thousand years, during which period the sun remains eight days longer in one hemisphere than in the other. At the present time the winters of the southern pole are eight days longer than with us; the ice continent has consequently formed there, and the mass of the ocean is to be found in the southern hemisphere, and the ice covers a space upon and around the south pole more than twice the area of all Europe. The extreme of cold at the Antarctic pole is supposed to have been reached in 1248, since which time the climate there has been becoming milder, while ours north of the equator has been gradually growing colder, and in the course of ten thousand years we shall be in the same frigid condition that now exists in the Antarctic, or as existed with us ten thousand years ago. Of course such a constant moving backward and forward of the oceans of the earth, would be all sufficient to account for the vast amount of ancient drift, which is noticeable in various parts of the earth; but probably no where more so than in California.

MEALY AND WAXY POTATOES.—An examination of the potato with a microscope has, at length, proved the relative worth of the mealy and waxy kinds of this useful vegetable. On examining a thin slice, it is seen to be almost entirely composed of cells, which are sometimes filled with, and sometimes contain clusters of beautiful little oval grains. These grains remain unchanged in cold water; but when it is warm they dissolve in it, and the whole becomes a jelly, and occupies a larger space than it did in the form of grains. When a potato is boiled, then each of these cells of which it is composed becomes a little vessel full of jelly; and, if there be not a great quantity of starch in the cells, it may be gelatinized without bursting them. But, if the number of grains or their size be very great, the cells of the potato are broken on all sides by the expansion of the little masses of jelly, and the appearance of mealiness is produced. Hence we see that mealy potatoes are the most valuable, and waxiness denotes a deficiency of starch or nourishing matter.

The steam which is seen to issue from the spout of a tea kettle is no hotter, as measured by a thermometer, than the boiling liquid within; yet when condensed in a body of cold water or ice, it gives out as much heat as one thousand times its weight of boiling water would do.

EFFECT OF HEAT UPON BUNKER HILL

MONUMENT.—In swinging a pendulum in the shaft of Bunker Hill monument, it is found that the ball of the pendulum, when at rest, is not always over the same point in the floor. This fact is due to the unequal expansion of the sides of the monument, in consequence of unequal exposure to the sun. On days when the sun is obscured by clouds, no motion of the ball occurs. On one occasion, during a sudden shower, accompanied with strong wind from the southeast, the ball moved in the space of a few minutes a quarter of an inch to the eastward. Observations were recorded through several weeks, and no doubt remains that a cause coincident with the sun in its progress produced the variations of the perpendicular in the monument. Another interesting fact is recorded. The extreme departure of the ball from the center is to the west of northwest; not to the north, as might at first glance be supposed. The explanation is found in the position of the monument. Its sides do not face the cardinal points, but are inclined about 20°. The expansion of a single side would produce inclination in a direction perpendicular to the side. The expansion of two adjacent sides would produce inclination in the direction of the diagonal. The greatest diameter of the irregular ellipse, described by the index in twenty-four hours, is ordinarily less than half an inch. The heat of the sun penetrates to but a moderate depth. This is evident from the prompt retrogressive movement of the column when a shower falls only upon the more highly heated sides.

SMOKE FROM GAS-LIGHTS.—It is pretty

generally imagined that the smoking of ceilings is occasioned by impurity in the gas, whereas, in this case, there is no connection between the deposition of soot and the quality of the gas. The evil arises either from the flame being raised so high that some of its forked points give out smoke, or more frequently from a careless mode of lighting. If, when lighting the lamps, the stop-cock be opened suddenly, and a burst of gas be permitted to escape before the match be applied to light it, then a strong puff follows the lighting of each burner, and a cloud of black smoke rises to the ceiling. This, in many houses and shops, is repeated daily, and the inevitable consequence is a blackened ceiling. In some well regulated houses, the glasses are taken off and wiped every day, and before they are put on again, the match is applied to the lip of the burner, and the stop-cock cautiously opened, so that no more gas escapes than is sufficient to make a ring of blue flame; the glasses being then put on quite straight, the stop-cocks are gently turned, until the flames stand at three inches high. When this is done, few chimney-glasses will be broken, and the ceilings will not be blackened for years.

A NEW METEORIC THEORY.—Sir John

Herschel has recently advanced the theory, not wholly new, but never before supported by well known facts, that meteoric showers are simply the light caused by the collision of the earth's atmosphere with the tenuous substance of a comet. Prof. Adams, who shared with Leverrier the credit of discovering the planet Neptune, not only accepts this theory but attempts to establish the identity of the comet through which the earth recently passed with Tailor's comet, whose orbit apparently coincides with that which, if a comet, the recent visitor would have taken. Those who have read Professor Tyndall's work on heat may find in this theory an additional reason to accept the learned writer's hypothesis as to the origin of the sun's light and heat.

A NEW IDEA.—Dr. Hayes, in his lecture on the Arctic regions, recently made the interesting statement that he had seen an iceberg so large that, if it were brought to New York and sold by the pound at the market rates, the proceeds would more than twice pay the national debt. The Doctor is no doubt a reliable mathematician, and his discovery is commended to the notice of the Secretary of the Treasury. The Great Eastern might be chartered and sent to tow the icy treasure into market, and Jay Cooke would undoubtedly take the job of converting it into greenbacks. The project is certainly an ice one.

WARMTH OF THE SNOW BLANKET.—Much

controversy has existed as to the warmth imparted to the earth by a covering of snow, until M. Boussingault, during the winter of 1841-2, found that a thermometer plunged in snow to the depth of a decimeter (about four inches) sometimes marked nine degrees of heat greater than at the surface.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, Jan. 20, 1868.

Prof. Whitney in the chair.

The action of the Council in declining an offer to exhibit the Academy collections at the City Gardens for \$100 per month, was confirmed.

A motion was adopted to print 500 copies of the new constitution, list of members, and annual address of the President.

It was stated by the President that the Council had appointed Mr. Bloomer Curator of Botany.

PUBLICATIONS.

The contribution of several publications was announced, including a history of fishes in Massachusetts, Kustel's new work on the treatment of ores, and a fine photograph of the skull of the Siamese Tiger from Boston. Copies of the second printed memoir of the Academy were distributed to members. It is an original paper by Baron Richthofen on the Natural System of Volcanic Rocks, comprising ninety-four pages.

FAUNA OF CALIFORNIA.

Dr. Cooper read a paper entitled *Additions to the Fauna of California*, giving notes of animal species recently determined to exist on this coast. Among these he enumerated one sea elephant, as large as a walrus, resembling the sea elephant of Cape Horn. It has been nearly exterminated by the seal hunters. Two species of seals have been identified, and three of the sea lion are enumerated, but there may be only one true species. There are sixteen species of bats in California, two of which are very large and curious. Two or three species of rodents have lately been added to the California list, including a link between the rat and rabbit, which is found in the Alpine region of the Sierra Nevada. A large flying squirrel has been found here, specimens having been produced from Mendocino and Sonoma, as attested by several members of the Academy. The same species was previously known in Oregon. The species of the cetacea, or whale family, have never been worked up; but ten are enumerated, and two or three others are reported. Of birds, quite a large number of species have been added, including the yellow crooked Arctic woodpecker, two new species of the humming-bird, several graminivores, a black hawk—the first found in the United States, a small owl, the pied oyster catcher, several snipe, two of the rail genus, yellow and black; the European widgeon, a straggler from Asia; the short-tailed albatross, the frigate pelican—which is rare north of the tropics; a large and entirely white gull, of a species not found but once before in the United States; the forked-tail petrel, from San Pedro, and the black petrel, from the Farallones; two species of puffin, and a white-bellied ork. Several of the above species were first identified and described by Dr. Cooper.

NOTES ON ALASKA.

T. A. Blake, of the recent scientific expedition to Alaska, read some interesting notes on the topographical and geological features of the northwestern coast. Like other continental coasts in high latitudes, north and south, this is bordered by high mountain ranges, and presents a most intricate and rugged shore, though grander than some others cited. This is mainly due to the mighty erosive action of glaciers, the formation of which is the natural result of atmospheric humidity and low mean annual temperature, due not only to geographical position, but to high elevation. The published and glaringly inaccurate charts of the northwest coast, north of Vancouver Island, fail to give an adequate idea of the vast archipelago of islands and network of channels with which the whole coast of British Columbia and that of the lower and eastern part of Alaska, below 59°, are fringed. The Straits of Fuca are the southern point of this complex system of labyrinthine channels, which afford peculiar facilities for inland navigation. After describing graphically the bold and picturesque shore lines of this region, and of Washington Territory, with its snow peaks rising from 8,000 to 11,000 feet above the sea, Mt. Baker being the highest, and mentioning the mild climate of Victoria, which shows a mean annual temperature of 50° and about 200 fair days, Mr. Blake sketched the appearance of the coast further north. Reaching Sitka Island, he described it as a mass of unexplored rugged mountains, many of which are capped with eternal snow. The town (a good drawing of which he exhibited) is situated at the head of Sitka Bay, the entrance to which is marked by the symmetrical volcanic cone of Edgecomb, the second of a series of volcanic peaks

bordering the coast and culminating in Mount Fairweather and St. Elias, the heights of which are variously stated. The latter is visible in clear weather at a distance of 150 miles. The rock in the vicinity of Sitka is a hard grit, sometimes coarse, often passing into digillite. The trend of this formation seems to be parallel to that of the coast. It extends as far south as "the deep sea," a remarkable fresh water lake, twelve miles southwest of Sitka, on the opposite side of which syenetic granite occurs. Limestone, highly crystalline, is found north and within a few miles of the town. The vegetation and general appearance of the coast is very similar to that southward, though the beautiful Sitka spruce, which is remarkable for its grace and the mathematical regularity with which its branches grow from the central stem, replaces the Douglas spruce of lower latitudes. Trees grow to large size, many being seen from six to ten feet in diameter. Little was known of the geology of the country. It is only along the shores that the rock can be investigated. The roughness of the country, and thick growth of timber, and masses of fallen and decaying trees covered with thick moss, always saturated with water, almost preclude geological investigation. Mr. Blake said he had yet to learn of a man, white or Indian, who had crossed from one side of Sitka Island to the other, a distance of not over twenty miles in some places. Russian meteorological observations show, as a mean of twelve years, the mean temperature to be about 42°, the extremes being very small. The same observations show a mean annual rain fall of 83.3 inches, the maximum being 105 inches. Along Chatham Straits, east of Sitka, the rocks are metamorphic, stratified mica schist, standing almost vertically, and showing a parallelism in their trend to the line of the coast and of upheaval. Glaciers are common along the inland waters north and back of Sitka Island. Three of these sweep grandly from the mountain gorges and rush to the water's edge, generally terminating in a low crescent-shaped flat, formed by the wash from their terminal moraines. In Icy Straits, north of Sitka Island, the ice from them falls into the sea, and so great is the accumulation as to render navigation dangerous. In latitude 59°, along Chatham Straits, every marked depression has its glacier of greater or less extent. These glaciers are to be seen at points as far south as the mouth of the Stikkeen river, and the lowest known limit on the coast is about latitude 54° in British Columbia, east of Port Simpson.

At the head of the Peninsula of Alaska is the commencement of another great line of volcanic action, which extends to the southwest, forming the peninsula, and then curving to the westerly the long chain of Aleutian Islands, stretching far towards the Kamtschatka line, stepping stones, as they have been aptly called, between the two continents. The rocks on the Island of Kodiak, east of the peninsula, metamorphic slates and sandstones, also show a general parallelism in their trend to that of their line of upheaval, trending N. E. and S. W. instead of N. W. and S. E., as on the coast of the mainland.

During the time spent by the recent expedition at Captain's Bay, Island of Ounalaska, Mr. Blake, Dr. Kellogg, and two of the officers of the Lincoln, made the ascent of Makuskin, an active volcano on the northern end of the island. The height was determined approximately at 5,600 feet, that of the snow-line at 3,168 feet, that of no vegetation at 2,500 feet, except the "red snow," which occurred at from 4,000 to 4,500 feet. An incipient glacier curves gracefully around a gorge on the east flank of the mountain. This island is marked by the entire absence of trees, though the hills are covered with a thick growth of grass. It is apparently almost wholly made up of volcanic rocks. Perhaps the most remarkable view of volcanic cones and peaks, snow-covered and rising from the sea, to be found in the known world, is that of Uinak Island, with its volcanic peaks of Shihaldin and Pogromaja, both conical peaks of unbroken symmetry, rising to heights of between 9,000 and 10,000 feet. Between them is Destruction Peak, comparatively low and irregular in its outline, showing it to be a volcano in its early stage of development. In 1863, its eruption caused the loss of many lives, and hence its name. The mountains are entirely snow-covered, and between them are vast fields of snow. Only in limited areas along the shore is snow absent. The angles of slope vary from 30° to 35°.

Mr. Blake confirmed previous statements as to the meagre knowledge of Alaska mineralogy. Good coal and paying quantities of gold are yet to be discovered. Copper

abounds on the dangerous Copper River, and magnetic iron ore and galena are reported. Fossils of the carboniferous age occur at Cape Beaufort on the Arctic coast, of the jurassic period on the east coast of the peninsula, tertiary fossils on Kodiak Island, and several other points.

At the close of Mr. Blake's interesting paper, Dr. Kellogg exhibited specimens of Siberian plants, interesting from their connection with the botany of our Northern Territory, with which they meet and mingle. Among the most marked species were forms of *Rhododendron*, from Ounalaska, of *Campanula*, *Topelia* and *Linnaea borealis*, besides a new species of the gooseberry family, combining in its fruit the qualities of the gooseberry and currant.

MISCELLANEOUS.

Prof. Whitney read an interesting paper on the method pursued by the Geological Survey in the naming of mountain peaks in California.

Dr. Cooper asked if the well-known muskrat of the Atlantic States had ever been observed here. Beavers are plentiful; but he had never met the muskrat, and had observed that where one of these animal tribes abound the other was scarce, the heavier being the deadly enemy of the muskrat. The latter is found in Oregon, but the beaver is the most plentiful.

Dr. Kellogg presented 100 models of crystalline forms, a gift to the Academy from Mr. Moore, late of Virginia City.

A CALIFORNIA INVENTION TO BE INTRODUCED.—Robert Kollett's ticket punch is to be introduced upon all the San Francisco city railroads on the first of February. From and after that date, single tickets, good for four trips, will be issued. At the first, second and third passage, the ticket will be presented to the conductor, who will punch a hole in it and then return it to the passenger. On the fourth passage the ticket will be delivered up. The punchings are preserved in a locked chamber attached to the key, which is opened only at the office, where the punchings are counted and employed as checks against mistakes or dishonesty on the part of conductors. This check punch is a California invention, and was patented through the MINING AND SCIENTIFIC PRESS PATENT AGENCY.

WATER METERS.—Fifty-six million gallons of water are daily brought into New York city by the Croton Aqueduct, one-half of which is said to be wasted. The Water Board are going to introduce water meters in all places using water, and charge by the quantity. Such should be the practice of every water company.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

BAY CITY HOMESREAD ASSOCIATION.—Jan. 21st. Capital stock, \$22,500.

MECHANICS' MILL ASSOCIATION.—Jan. 20th. Capital stock, \$40,000; 400 shares, \$100 each. Trustees: A. W. Jee, William P. Cantrell, George R. Jessee, M. Russell and J. Kendall.

ELECTION OF OFFICERS.—KEARSARGE MINING CO.—Jan. 20th. Trustees: Nathl. Page, Thos. Sunderland, Geo. Stead, Wm. N. Wade and E. B. Mott, Jr. President, Nathl. Page; Secretary, T. B. Wingard.

THE PIONEER OIL MILL of Salem, Oregon, made its first oil on the 6th instant. The machinery of the mill is similar to that used at the oil mill at the foot of Third street in this city. Oil is used in the hydraulic press, instead of water, for expressing the oil from the crushed seed.

MERCANTILE LIBRARY ELECTION.—The annual election of officers of the Mercantile Library Association was held on Tuesday last. Only 174 votes were cast, 11 scattering; the rest were all for the ticket which was elected: President, Robert B. Swain; Vice President, William H. L. Barnes; Corresponding Secretary, David Wilder; Recording Secretary, Thos. R. Hayes; Treasurer, William C. Ralston; Trustees: William G. Badger, J. McNulty, Henry Neustadter, William Ashburner, Morris Mayblum, A. B. Forbes, Arthur M. Elbets, William E. Wood and F. B. Reynolds. Work on the new building is progressing rapidly, and it is thought it will be ready for occupation by April next.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

72,581.—IMPROVEMENT IN BOXES FOR GAUGING SHINGLES.—John W. Alesworth, Santa Cruz, Cal.:

What I claim is a gauging box for shingles, constructed with the sides, B, with their graduated steps, b, b, b, together with the movable box, D, and bar, F, substantially as and for the purpose described.

The object of this invention is to provide a gauging machine for straightening and gauging the edges of lumber, such as boards, planks and shingles, but more especially the latter, after they have been split and shaved. The device by which this is accomplished, consists of a platform mounted on legs, and having side boards with graduated steps at each end. A box of the desired length, with top and bottom removed, is placed upon the form between the side boards, and is provided with a transverse screw for pressing the shingles together. In order to level pieces of boards or planks, false bottoms are employed, having the necessary beveled grooves. The false bottoms are raised as is necessary, by head pieces having pins in them.

72,687.—IMPROVEMENT IN SOLAR AND TRANSIT INSTRUMENTS.—William Schmolz, San Francisco, Cal.:

What I claim is the hour circle, d, fastened upon the base, P' A', with a solar apparatus attached upon the axis, P, in combination with a surveyor's transit, substantially as described and for the purposes set forth.

The object of this invention is to provide surveyor's transit instruments with a solar attachment, the two being combined, so that the operator is enabled to find the longitude, latitude, true meridian, hour of the day, the sun's declination, and the variation of the magnetic needle; the whole forming a part of and attached to one and the same instrument.

RECENT INVENTIONS.

GOLDEN INK.—A gentleman in Mississippi is said to have invented a golden fluid, which, if used as an ink, will present the same appearance as writing, executed with common ink, does when it is dashed with fine gold dust before drying. It is said to form a singularly brilliant, chemical writing fluid. The happy inventor is said to have made the discovery while compounding a wash for the cure of cancer. He says the colors are permanent, and that the ink will become a favorite with printers and sign painters.

A NEW SHINGLE MACHINE.—The Vancouver Register describes a new shingle machine, the invention of Mr. I. I. Lancaster, of that place, which is believed will prove to be of superior excellence. The Register says it is a hand machine, intended to be operated by a lever, and is calculated to cut a shingle every second, or rather a piece wide enough for three shingles every second. Allowing reasonably for accidents and ordinary waste of time, it is perhaps safe to estimate its capacity at a shingle per second. It will whittle down our forests of cedar at the rate of 36,000 shingles in ten hours.

A "SAILING CARRIAGE."—The St. Louis Democrat describes a newly invented "sailing carriage," designed for use on the New Mexico route: It has two upright jib sails, and a sail on each spoke of the two wheels on one side of the wagon, with steering gear acting on the forward wheels, and provision for transferring the wheel sails to the opposite wheels. The inventor is a German, who has been a sailor, and has since spent several years in traversing the plains. He relies for its practicability upon the constancy of the prevalent winds on the plains. The wheels are ten feet high, the wagon body shaped like a long boat and hug low. The whole concern presents an odd and formidable appearance. The design is to take passengers and mail matter only—not freight—and it is expected that the carriage will suffice as a boat in crossing streams.

NEW CALCULATING MACHINE.—Samuel J. Kelso, of Detroit, has received a patent for a machine which can be used for adding, subtracting and multiplying figures of any desired magnitude, with the greatest ease and facility.

Weekly Stock Circular.

Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
January 25, 1886.

Mining Share Market.

We report a very active market during the period under review, and also a very general advance in several leading stocks over prices which obtained in the previous week. The inclemency of the weather has greatly interfered with milling operations, in a great measure preventing the hauling of ores and otherwise retarding their reduction as well as production; however, this did not prevent some very important developments in various claims, particularly the Hale & Norcross, at their lower depths. At the close, the market is less firm, and prices a shade lower.

The following table shows the bullion product of the leading claims on the Comstock Lode during the year 1885, as compared with 1884:

COMPANY.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Hale & Norcross.....	\$102,571 72	\$117,650 44	\$73,144 02	76,327 88	\$100,258 88	\$117,728 23	\$123,806 17	\$124,654 69	\$120,250 29	\$140,900 00	\$151,653 81	\$141,257 55	\$1,007,297 45
Savage.....	290,000 00	270,000 00	130,000 00	400,000 00	400,000 00	370,473 06	370,473 06	320,641 51	301,250 29	312,066 00	310,517 30	189,919 50	3,127,110 96
Crown Point.....	140,000 00	120,500 00	64,341 58	62,597 00	40,000 00	77,550 00	120,000 00	140,000 00	100,000 00	100,000 00	60,000 00	80,000 00	1,120,276 91
Yellow Jacket.....	168,300 37	117,488 97	106,913 85	222,075 44	278,848 63	135,913 65	100,000 00	130,000 00	100,000 00	100,000 00	60,000 00	6,917 80	1,120,276 91
Gold & Curry.....	68,423 00	45,165 41	62,763 47	63,200 19	74,822 88	44,446 61	31,681 17	37,000 00	252,000 00	252,000 00	252,000 00	15,917 80	2,088,885 36
Chollar-Potosi.....	80,000 00	100,000 00	64,000 00	245,000 00	334,288 17	345,000 00	311,681 17	37,000 00	252,000 00	252,000 00	252,000 00	15,917 80	2,088,885 36
Empire M. & M. Co.....	38,183 00	28,757 00	22,861 00	22,864 66	21,933 00	21,933 00	26,412 32	22,333 30	18,680 40	20,571 43	18,577 48	68,867 94	1,106,495 30
Imperial.....	118,948 67	116,290 00	60,431 95	95,432 91	92,000 00	170,000 00	99,257 54	89,290 00	97,880 00	68,867 94	68,867 94	68,867 94	1,106,495 30
Confidence.....	24,006 10	11,411 86	8,022 71	18,202 78	12,000 00	14,000 00	16,257 52	12,304 17	11,210 11	13,547 71	68,867 94	68,867 94	1,106,495 30
Ophir (aggregate).....	45,467 71	70,095 42	58,572 83	108,553 83	132,333 88	330,255 31	125,257 31	104,215 33	101,000 00	102,326 65	65,290 16	86,296 57	1,140,741 94
Kentuck (aggregate).....	6,000 00	9,000 00	7,300 00	10,000 00	10,600 62	12,500 00	20,250 57	9,712 52	3,250 04	10,905 79	12,843 26	4,272 82	100,399 42
Gold Hill Q. M. & M. Co.....	5,000 00	9,000 00	7,300 00	10,000 00	10,600 62	12,500 00	20,250 57	9,712 52	3,250 04	10,905 79	12,843 26	4,272 82	100,399 42
Overman (aggregate).....	1,022,277 57	\$1,101,238 10	\$738,004 41	\$1,202,857 09	\$1,004,796 66	\$1,148,887 61	\$1,379,115 60	\$1,106,548 58	\$1,171,728 82	\$1,070,788	\$894,120 35	\$686,657 78	\$13,730,617 97

tion, south mine, 476; and 4th station, south mine, 21 tons of ore. A dispatch of the 24th inst., states that the north drift, on the fourth station, is in four feet of ore, and looks very promising in going north.

YELLOW JACKET—was in the market at \$289.750, then sold at \$230, and closed at \$224. An assessment of \$125 per foot was levied on the 22d inst. The prospect says that the pump is being let down, and the shaft is to be sunk an additional depth of 200 feet. The winze on the Kentuck line is down 170 feet in good ore, and the next station will doubtless develop a fine body of ore. At present, but little ore is being mined.

The bullion product of the Yellow Jacket Claim has been estimated for the last six months of 1885, we having been unable to obtain the figures from the office of the company at Virginia. The following table shows the yield of the various companies for 1886:

COMPANY.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Hale & Norcross.....	\$102,571 72	\$117,650 44	\$73,144 02	76,327 88	\$100,258 88	\$117,728 23	\$123,806 17	\$124,654 69	\$120,250 29	\$140,900 00	\$151,653 81	\$141,257 55	\$1,007,297 45
Savage.....	290,000 00	270,000 00	130,000 00	400,000 00	400,000 00	370,473 06	370,473 06	320,641 51	301,250 29	312,066 00	310,517 30	189,919 50	3,127,110 96
Crown Point.....	140,000 00	120,500 00	64,341 58	62,597 00	40,000 00	77,550 00	120,000 00	140,000 00	100,000 00	100,000 00	60,000 00	80,000 00	1,120,276 91
Yellow Jacket.....	168,300 37	117,488 97	106,913 85	222,075 44	278,848 63	135,913 65	100,000 00	130,000 00	100,000 00	100,000 00	60,000 00	80,000 00	1,120,276 91
Gold & Curry.....	68,423 00	45,165 41	62,763 47	63,200 19	74,822 88	44,446 61	31,681 17	37,000 00	252,000 00	252,000 00	252,000 00	15,917 80	2,088,885 36
Chollar-Potosi.....	80,000 00	100,000 00	64,000 00	245,000 00	334,288 17	345,000 00	311,681 17	37,000 00	252,000 00	252,000 00	252,000 00	15,917 80	2,088,885 36
Empire M. & M. Co.....	38,183 00	28,757 00	22,861 00	22,864 66	21,933 00	21,933 00	26,412 32	22,333 30	18,680 40	20,571 43	18,577 48	68,867 94	1,106,495 30
Imperial.....	118,948 67	116,290 00	60,431 95	95,432 91	92,000 00	170,000 00	99,257 54	89,290 00	97,880 00	68,867 94	68,867 94	68,867 94	1,106,495 30
Confidence.....	24,006 10	11,411 86	8,022 71	18,202 78	12,000 00	14,000 00	16,257 52	12,304 17	11,210 11	13,547 71	68,867 94	68,867 94	1,106,495 30
Ophir.....	45,467 71	70,095 42	58,572 83	108,553 83	132,333 88	330,255 31	125,257 31	104,215 33	101,000 00	102,326 65	65,290 16	86,296 57	1,140,741 94
Kentuck.....	6,000 00	9,000 00	7,300 00	10,000 00	10,600 62	12,500 00	20,250 57	9,712 52	3,250 04	10,905 79	12,843 26	4,272 82	100,399 42
Gold Hill Q. M. & M. Co.....	5,000 00	9,000 00	7,300 00	10,000 00	10,600 62	12,500 00	20,250 57	9,712 52	3,250 04	10,905 79	12,843 26	4,272 82	100,399 42
Overman.....	1,022,277 57	\$1,101,238 10	\$738,004 41	\$1,202,857 09	\$1,004,796 66	\$1,148,887 61	\$1,379,115 60	\$1,106,548 58	\$1,171,728 82	\$1,070,788	\$894,120 35	\$686,657 78	\$13,730,617 97

DURING THE YEAR 1886.

KENTUCK—was quite active at \$275. Nothing new from the mine. The receipts of bullion to the 18th inst., foot up at \$14,894.

IMPERIAL rose from \$170 to \$190, and closed at \$188. Both mines of this company are yielding the usual quantity of ore, but they experience considerable difficulty in carrying it to the mills, on account of the bad roads; the mills, however, have a full supply of ore at present.

OPHIR—declined from \$70 to \$62.50, advanced to \$70.30, and closed at \$67.50. An assessment of \$3 per share, or \$36 per foot, was levied on this stock on the 20th inst. GOLD & CURRY advanced from \$380 to \$430, and closed yesterday at \$420. They have ceased extracting ore from this mine for the present. The office of this company is now located in Stevenson's Building, on Montgomery street.

EMPIRE—was in the market at small extent at \$180. BELCHER sold at \$180.170, then at \$165, and at the close \$160 is bid. GOLD HILL QUARTZ realized \$200.35. SIERRA NEVADA receded from \$24 to \$22, and closed at \$21. EXCEQUER rose to \$33, and closed at \$31. A few shares of CONFIDENCE sold at \$37.50, and BULLION at \$37, closing at \$35.

The sales in the Regular Board during the past week aggregate \$1,871,145.

National Mineral Land Law, Instructions.

Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

CHOLLAR-POTOSI—was less active than during the previous week, opening at \$186, improving to \$230, then selling at \$200.225, and closing at \$216. During the week ending January 16th, the New Santa Fe gold yield 30 tons of ore, and the Santa Fe third 525 tons, showing average assays from car samples of \$28 and \$32 per ton respectively. The various mills employed by this company have taken 551 tons of ore during the same period as stated above, leaving at the dumps 2,443 tons. At the new shaft the north drift is being continued, having nothing but porphyry in the "face."

SAVAGE—continues the most active stock on the list, and sold at a marked advance, improving from \$120 to \$152, and at the close realizing \$146. During the week ending January 15th, 1,034 tons of ore were extracted, showing an approximate value of \$35,632, or an average of \$34.46 to the ton. This amount was taken from the following points: 2d station, north mine, 73; 3d station, north mine, 464; 3d sta-

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquency Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Amador Co., dividend, \$4 per share.....	Payable Jan 10	Feb 17
Arizona Consolidated, Dec 23, 50c.....	Jan 29-Feb 17	
Belcher, Storey Co., Nev, Dec 27, \$15.....	Jan 27-Feb 28	
Belcher, Baldwin & Abernethy, Storey Co., \$5.....	Jan 27-Feb 28	
Chilpancuca, Sonora, Mexico, Jan 25, \$5.....	Feb 26-March 16	
Cherokee Flat B. G., Butte Co., Annual Meeting Feb 17	Feb 17	
Cherokee Flat B. G., Butte Co., Cal, Jan 7, \$5.....	Feb 10-Feb 17	
Chollar-Potosi, Storey Co., Nev., Dec 10, \$15.....	Jan 15-Feb 3	
Colorado, Colorado Mty., Dec 31, \$10.....	Feb 3-Feb 21	
Chollar-Potosi, Storey Co., Nev, \$15.....	Jan 15-Feb 3	
Gold Hill, M. & M. Co., Nev., \$10.....	Jan 27-Feb 15	
Gold Hill, M. & M. Co., Nev., \$10.....	Jan 27-Feb 15	
Cosum, Sonora, Mex, Dec 2, \$1.....	Jan 7-Jan 28	
Crown Point, Nev, dividend \$80.....	Payable May 15	
Die Padre, Mex, Jan 10, \$5.....	Feb 11-March 5	
Enterprise, Nevada Co., Jan 6, \$4.....	Feb 6-Feb 22	
El Tesoro, Lower California.....	Annual Meeting Jan 27	
Excelsior, Storey Co., Nev, Dec 9, \$2.....	Jan 11-Jan 28	
Empire M. & M., Nev, dividend \$6.....	Payable May 15	
Fogus M. & M., Amador Co., Cal, Jan 4, \$5.....	Feb 8-Feb 25	
Golden Rule, Tuolumne Co., div 50¢ sh. sh.....	Payable Dec 26	
Gold Hill Q. M. & M. Co., div \$10.....	Payable Dec 16	
Hanouse, Del Norte Co., Jan 15, 75c.....	Feb 14-March 2	
Hope Gravel, Nevada Co., Dec 16, \$1.....	Jan 22-Feb 10	
Hale & Norcross, Virginia, Nev, Dec 10, \$75.....	Jan 13-Feb 1	
I. X. L., Alpine Co., Dec 12, \$1 50.....	Jan 18-Feb 6	
Imperial, Virginia, Nev, div \$10.....	Payable July 15	
Julla, Reese River, Nev.....	Meeting Feb 1	
Josephine Quicksilver, San Luis Obispo, div, \$2.....	July 8	
Kearsarge, Inyo Co., Jan 20, \$1.....	Feb 21-March 16	
Kentuck, div, \$7.50 per share.....	Payable Nov 9	
Lake, Lake Co., Jan 15, \$20.....	Feb 16-March 5	
Lady, M. & M., Nevada Co., Nev, Dec 27, \$6.....	Jan 1-Jan 27	
Lady Hill, Del Norte Co., Jan 8, 15c.....	Feb 16-March 3	
La Manera, Sonora, Mex, Jan 2, \$2.....	Feb 1-Feb 17	
London Q. M., Siskiyou Co., Nov 23, 70c.....	Jan 4-Feb 4	
Nuestra Señora, Mex, Jan 3, \$1.....	Feb 16-March 3	
North Star, Lander Co., Nev, div \$2.....	Payable Nov 28	
Howhawk and Mont, Nev, Co., Dec 23, \$2.50.....	Jan 16-Feb 3	
Mr. Tombo, Lander Co., Nev, Jan 9, \$2.50.....	Feb 20-March 12	
Ophir, Storey Co., Nev, Jan 20, \$3.....	Feb 20-March 10	
Oxford Beta, Esmeralda, Nev, Nov 18, 50c.....	Jan 23-Feb 12	
Old Colony, Lander Co., Nev, Dec 19, Jan 25-Feb 20		
Peninsula, San Antonio, Mex, Dec 3, \$10.....	Jan 14-Jan 29	
Rattlesnake, Yuba Co., Jan 23, \$2.....	Feb 26-March 17	
Rippon, Alpine Co., Dec 17, 50c.....	Jan 22-Feb 8	
Savage, Virginia, Nev, dividend.....	Payable Jan 15	
Silver Star, Storey Co., Nev, Dec 11, \$4.....	Jan 16-Feb 3	
San Jacinto, Silver City, dividend.....	Payable Dec 10	
Sophia Co., Tuolumne Co., Dec 11, 50c.....	Jan 10-Jan 25	
Shoshone, Lander Co., Nev, Dec 11, \$1.....	Jan 20-Feb 10	
S. F. & C. Co., Arizona, Nov 10, 75c.....	Jan 7-Jan 27	
Siempre Viva, Sonora, Dec 4, 25c.....	Jan 10-Jan 27	
Texas Flat, Fresno Co., Cal, Jan 3, 25¢ per sh.....	Feb 15-Mar 3	
U. S. Grant, Nevada Co., Dec 10, \$5.....	Jan 13-Feb 8	
Venaua, Mex, Jan 8, \$1.50.....	Feb 10-Feb 27	
Wahwah Co., Contra Costa Co., Jan 22, \$3.....	March 17-April 7	
Yellow Jacket, Gold Hill, div. \$75 sh.....	Payable July 10	

Those marked with an asterisk () are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, JAN. 24, 1886.	
MICROSCOPIC STOCKS.	Bid. Ask.
United States 7 1/2 Bonds, June issue.....	75 1/2 76 1/2
Legal Tender Notes.....	71 1/2 72 1/2
California State Bonds, 7s, 1887.....	97 1/2 98 1/2
San Francisco Bonds, 10s, 1891.....	105 1/2 106 1/2
San Francisco City Bonds, 6s, 1885.....	80 90
San Francisco City and County Bonds, 6s, 1888.....	80 85
San Francisco City and County Bonds, 6s, 1891.....	80 85
San Francisco City and County Bonds, 7s, 1895.....	80 85
San Francisco City and County Bonds, 7s, 1898.....	80 85
San Francisco City and County Bonds, 7s, 1901.....	80 85
San Francisco City and County Bonds, 7s, 1904.....	80 85
Sacramento City Bonds, 6s.....	25 27 1/2
Marquette Bonds, 10s.....	68 70
Yuba County Bonds, 10s.....	75 78
Santa Clara County Bonds, 7s.....	75 78
Butte County Bonds, 10s.....	75 78
San Mateo County Bonds, 7s.....	75 78
San Mateo County Bonds, 7s.....	75 78
San Mateo County Bonds, 7s.....	75 78
Spring Valley Water Co.....	65 68
State Telegraph Co.....	65 68

GAS COMPANIES.

San Francisco Gas Co..... 65 66

Sacramento Gas Co..... 65 66

RAILROADS.

San Francisco and San Jose Railroad..... 40 45

Quincy Railroad..... 40 45

Central Railroad..... 40 45

North Beach and Mission Railroad..... 38 40

Front Street, Mission and Ocean Railroad..... 11 12

BANKING INSTITUTIONS.

California Loan and Savings Society..... 90 100

Bank of Pacific Accumulation Loan Society..... 152 156

The Bank of California..... 152 156

INSURANCE COMPANIES.

Fireman's Fund Insurance Co..... 85 95

Pacific Life Insurance Co..... 115 120

San Francisco Insurance Co..... 375 400

Merchants' Mutual Marine Insurance Co..... 375 400

California Insurance Co..... 375 400

Union Insurance Co..... 375 400

California Home Insurance Co..... 375 400

Home Mutual Insurance Co..... 375

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

Notwithstanding the bad effects of the late storm, which swept the coast, and in its course laid waste the fruits of mining labor, we are pleased to learn that work is being, and will be, resumed on most of the claims. Some claims perhaps will require months to again get in proper working order; but there is no doubt but that the interest and future prosperity of our State demand that the work of opening up our extensive placer mines and the careful and prudent working of our quartz ledges should go on, let come what will. It was our mines that first brought us out of a state of nature and made us a populous State. They have been to us what bread is to the hungry man, and all that is necessary for us to do to concentrate in our midst a great mart, from whence the produce of the nation, and perhaps of many nations, will be distributed all over the country, is to see that our mines are properly worked. Storms will come, and, in the nature of things, it is to be expected that damages will occur to everything exposed; and the only way to treat such affairs is to go immediately to work and refit what has been injured. The interior papers are constantly filled with reports of new discoveries. In Idaho, the mines are doing well, and silver bricks are being turned out at Warren's Diggings. In Oregon, there has been new discoveries near Jacksonville, and also in the more eastern portion of the State. Montana also reports new discoveries, said to be quite rich; also Utah, Dacotah and New Mexico; while we in California and Nevada report almost daily the discovery of rich quartz ledges; and altogether we may consider that mining all over the coast, in all its branches, is in a very healthy condition.

CALIFORNIA.

Alpine County.

Miner, Jan. 11th: A new strike is reported in the I. X. L. Co's mine. The Tarshish is showing ore at every step. We learn that they have struck a large deposit of the rich, soft or sack ore in the Tarshish shift, from which 24 sacks have already been taken, and lots more in sight.

Amador County.

Ledger, Jan. 18th: The Coney & Bigelow mill having been put in complete repair, will commence crushing next Monday. During the past two months a new and much larger boiler has been put up in place of the old one, and many other important repairs have been made. They have a fine lot of rock on hand, and from this time on it will be kept in constant operation.

Butte County.

Oroville Record, Jan. 18th: The large frame building, known as Whitaker's mill, on the Barum claim on the Blue Lead, collapsed under the pressure of snow, and now lies a total wreck. The machinery must necessarily be more or less damaged. Kendall, Vail & Co. have four stamps running regularly and paying very well.

The Cherokee Flat correspondent writes: The miners are taking advantage of the water. As to mining, so far it has been a glorious season. No one who has been willing to work, has laid by from necessity. Harris & Co. have been running day and night; so has Powers, using Harris & Co's water; but their reservoirs are about empty. The Cherokee Co. have in their reservoirs some 20 days' run, and are employing about 30 men. As to clean ups, that is not thought of as long as water lasts; but as the diggings have been worked so long, the owners can pretty well guess how they will pay, by the amount of dirt run off.

Calaveras County.

San Andreas Register, Jan. 18th: C. V. McNair, one of the owners of the Washington, says that the amalgam recently taken from that claim, [of which we gave notice,] was taken from only 12 tons and 700 lbs., and that the returns from San Francisco shows a yield of \$992 instead of \$882.

From persons recently from Camanche, Frankfort and Haightville, we get the following items: There are about 300 white and 200 Chinamen at work in that locality, where they can get water from the pipe. Nearly all the claims are paying—the best ones averaging \$7 or \$8 per day to the

hand. Wm. Leonard's claim paid \$22.50 for the last week, over all expenses and wages. The German claim, worked altogether by the Germans, paid \$250 the last week; David Jenks' claim paid \$25 more than expenses and wages; Zimmerman's, Cohnrn's and the French claim—all hill claims—each paid about \$8 per day to the hand. There are a large lot of claims with no water. The owners are digging their side ditches, and will probably be at work in two weeks, provided they can obtain water from the ditch. Mr. Marey buys about \$2,500 worth of dust per week, and he purchases about one-half of the dust offered for sale in Camanche. The Supt. of the ditch—Mr. Mackey—received about \$700 in cash for water last week.

Kern County.

Havilah Courier, Dec. 21st: Work on the Belmont mine, Washington district, will be resumed next week. The mine has been purchased, or a greater portion of it, by other parties, and the prospect is that the Belmont will yield a rich reward to the proprietors.

Last week's item, alluding to the St. John mine, at Sageland, was incorrect as to the amount; it should have been \$10,000 instead of \$5,000. McKeadney's mill is at work constantly, crushing ore from the Delphi mine, which yields very well.

Mariposa County.

Mail, Jan. 18th: Mining interests in Cathey's Valley are flattering. Thos. Kendall's quartz lead has been paying finely for some time past. He has now leased the claim and the use of his two anastars to a party for one year, at \$75 per month. Mr. K. has another lead which he intends prospecting.

The resident managers of the Mariposa Co's estate evince a disposition to do business in a business way; and though they go a little slow, we are convinced that when operations commence, they will commence on a solid and permanent basis. Work will be resumed at the Benton mill, without reconstructing the dam, carried away by the late flood. A ditch will be dug from an available point instead, for the purpose of supplying water for the mill.

Nevada County.

Gazette, Jan. 21st: We were shown a day or two ago the drawings for a new 10-stamp mill, to be erected at Kate Hays Flat, near French Corral. The claims were purchased a few weeks ago by Messrs. Coleman, Crittenden and Paulinier, and the contract for the machinery has been made with the Nevada Foundry. The mill will be run by water, and they expect to have it in operation by the middle of March. The cement claim is situated in an ancient river channel, is from 100 to 150 ft. in width, will average 10 ft. in thickness, and is 600 feet in length. The bed of cement has been prospected in different places, and quite thoroughly, and has given various yields, ranging from \$26 to \$60 per ton. The surface ground has been sluiced off by the hydraulic, and the cement can be taken out and delivered in the mill at a trifling cost.

The mill of the Banner Co., which suspended operations for a week or two, was started up again on Monday. They anticipate no difficulty hereafter in keeping their 20-stamp mill in constant operation, and in addition will probably furnish a large supply of ore for estom mills.

Transcript, Jan. 17th: O. Palmer and Sam. Everingham are going to remove the machinery of Palmer's mill from this city to Graniteville in the spring, and put up a custom mill there. A great deal of prospecting is being done in that vicinity.

Jan. 18th: Hydraulic mining throughout Little York township is pretty generally suspended in consequence of the breaking of ditches. The William's ditch has a little water which comes in below the head of the cañons, but none others are running water. Men are examining the extent of damage done the ditches, and it is not known how soon mining will be resumed until they report.

Ennis & Co. are working a cement claim, located on Greenhorn, north of Red Dog. They prospected all summer, and found encouraging indications. They have opened on the channel by a tunnel, and have made two clean ups, which were in every respect satisfactory. The parties consider their mine excellent.

Jan. 19th: A company of Chinamen, mining at the headwaters of Diamond Creek on the ground upon which the old Union mill formerly stood, made a rich strike a short time since, and are now taking out from \$8 to \$10 per day to the hand. White men have been working in this locality for years, but none supposed the ground to be worth washing.

Grass Valley *National*, Jan. 17th: The old Alta hoisting works on Alta Hill, fell down this morning from the pressure of snow.

Jan. 20th: The 30-stamp mill of the Eureka Co. is now in operation, and works satisfactorily.

At the North Star Co's works at French Leap, last evening, the "bob" connecting with the pump rod gave way, and put a stop temporarily to pumping operations. The breakage, however, will be repaired, and pumping resumed this evening. The mine continues to yield rich rock in quantity sufficient to keep their 16-stamp battery in constant operation.

The Boston Mill Co. is about to erect a mill on their mine in Washington district, in this county.

The Empire mine continues to yield rich specimens daily.

A party of youngsters have been engaged for some time past in picking up float quartz and crushing it in a hand mortar, and some of their crushings have yielded at the rate of \$1 per hour for the time employed in the operation.

Siskiyou County.

Yreka Union, Jan. 11th: Messrs. Genner & McConaughy have been prospecting some ground between Rough and Ready and Athena with very flattering results, and their success has excited a good deal of interest in prospecting in that section. There are many points along the western skirts of Scott Valley where thorough prospecting would develop good diggings which would furnish remunerative occupation to hundreds and perhaps thousands of men.

Mr. S. S. Richardson, formerly superintendent of the London Quartz Co., on Indian Creek, in this county, is at present engaged in bringing water on to one of the high bars of the Klamath in the vicinity of Happy Camp. He has completed the survey of the ditch, and will commence to dig it in February. It will take water from Elk Creek five miles from its mouth and carry it to a bar on the Klamath three miles above the junction of that stream with the Klamath. It will require years to work the bar out.

COLORADO.

Register, Dec. 31st: Thirty pounds of ore from the Comet lode, Griffith mountain, recently yielded at the rate of \$455 per ton.

C. J. Goss has discovered a new lode just below the Lily. Fred A. Clark showed us 10 ozs. of silver that he extracted from 25 lbs. of the ore without a crucible.

Five tons of first-class ore from the Young America lode is being treated at Garrott, Martine & Co's, in Georgetown, three tons at the California Reduction Works, and a quantity at the works of Mr. Kinney, lately started at Mill City. We were shown at Messrs. George T. Clark & Co's two bars taken out by the California Reduction Co. from this ore. The ore was of the second class, and assayed \$154.97 per ton. From 2½ tons the result was \$342 coin.

Mr. Conlee cleaned up 161½ ozs. of gold from his last week's work.

Mr. Tenuel informs us that they have cut the same stratum of ore in the Smith & Parnelle pump shaft, at a depth of 450 ft., that the Black Hawk Co. have been doing so well with the past year.

Mr. John Collom, of Bear creek, Snake River district, recently made assays of lead reduced by him—60 percent. of the dressed mineral—and found the value \$450 per ton after deducting the lead contained in the litharge used. He uses the Scotch hearth and the Collom separator.

Fred A. Clark, with five teams, carrying six tons of ore from the Terrible lode, came through town yesterday, en route to the California Reduction Works. It was as pretty ore as we ever saw, chunks weighing 100 lbs. being not uncommon. It cost about \$30 a ton to mine, \$5 to pack down to the wagon road, \$25 to haul to Black Hawk, and about \$100 to work, making the entire cost \$160 per ton. Yet the owners expect to make money in the operation.

Letter from Oro City, Dec. 16th: The promise of lively times in this section next season is good. A few of the property holders of Granite have entered into an arrangement with a Mr. Hayden to furnish a mill for an interest in some of their lodes. They have got their mill on the ground and in process of erection, and will have it running by the first of May next, it being the pioneer mill of Lake county.

Denver *News*, Jan. 1st: We were shown yesterday by Mr. Curtis, a "button" from the Goss lode, Georgetown, valued at \$13.93. This was assayed from 25 lbs. of ore.

Georgetown *Miner*, Jan. 2d: Messrs. Scott & Packard have discovered a new lode on Columbia mountain, about 100 ft. above the Monticello, that they are now actively developing. It is said to be looking well.

We learn that it is probable that the erection of extensive reduction works will be commenced here soon.

Garrott, Martine & Co. have taken out and shipped during the week 1,242.90 ozs. of silver bullion, coin value \$1,452.61.

Shaft No. 3, east, on the Hunkadora lode, is now down to a depth of 100 ft., it being the deepest shaft in this district. The crevice is now 8 ft. between the walls, and the ore vein full 3 ft. in width.

We recently visited the Young America lode. Discovery shaft is 26 ft. in depth, and 60 ft. east is another shaft 33 ft. deep. From the bottom a drift has been run 20 ft. east. About 15 ft. from the surface another drift has been run a distance of 15 ft., and in this the full crevice sparkles with rich mineral. From this shaft to the end of the 1,500 ft. east of discovery, the crevice is developed every hundred ft., and 1,200 ft. east a shaft 8 ft. in depth has been sunk, showing the crevice at this point 8 ft. in width.

DACOTAH.

Reese River *Reveille*, Jan. 11th: We are in receipt of a communication from "Miner Boy," dated the 1st inst., concerning the Sweetwater district, giving an account of late discoveries of rich quartz and placer mines. The letter appears to us to have been written in a spirit of careless extravagance, to say the least. All the surroundings of the district are noted in superlatives. If it is a plain statement of facts, its publication will benefit nobody; while on the other hand, if it is a string of exaggerations it might work a great deal of mischief. The mines of Sweetwater may turn out to be all that the writer claims them to be; but that remains to be seen. In the meantime careful men will wait patiently. We will close by giving a few extracts from the letter. The Pacific ledge is from 12 to 18 ft. wide, and shows some four or five miles; prospects very rich. "The Amphitryon shows for 4,000 ft. five ft. wide, and is probably the richest gold mine in the world. The Atlantic is A No. 1; crops out for four miles; is from six to fifteen ft. wide; assays \$197 per ton. The Mammoth is just as good. The Lone Star State shows gold in the rock; shows well, prospects very rich, and stands very high. Besides these a hundred others have been located, many of which are just as rich. The mineral belt in which these are found is 300 miles in length, by from 30 to 60 in width; but of this only a narrow belt of some 15 miles in length by five in width has been prospected, and the mines have been all found in this small space." "Three rich gulches have been struck within the last week. One of them, the Atlantic Gulch, prospects from three to 25 ets. to the pan; five ft. of gravel; plenty of water. Temple's Gulch gave \$1.45 from seven shovelfuls washed upon the shovel. This section of country is second to none on the Pacific coast. Such chances for investing money I never saw; such chances for business only occur now and then; such opportunities for introducing machinery and building mills probably never will present themselves for acceptance again." "Many capitalists are now on their way hither to invest, and ere spring opens upon us large sales will be made, if we can judge from present prospects. By October next not less than 30,000 men will people this very region where last July 18 Indians reigned supreme."

IDAHO.

Owyhee *Avananche*, Jan. 11th: The Oro Fino mine still continues to yield large quantities of gold bearing rock—in much of which gold is plainly discernible to the naked eye. The tunnel is 670 ft. in length; the discovery shaft tapping the tunnel is 180 ft. deep; there are three shafts in the tunnel of the following depths: South shaft, 75 ft.; middle shaft, 75 ft., and north shaft, 135 ft. in depth. The mine is now in such a shape that almost unlimited quantities of ore can be taken out.

In the Ida Elmore, the hoisting is done by steam, from a well timbered double shaft, 105 ft. deep, from the bottom of which a drift has been run on the ledge 200 ft. north and 60 ft. south. The ledge is from 2½ to five ft. wide between the casings. Thirty men are employed night and day in and about the mine. It is thought that the New York and Ida Elmore are one and the same ledge, and a drift is being run south on the New York to connect with the north drift on the Ida Elmore. We are informed that the distance yet to be run, in order to make this connection, is only a little over 100 ft.

In the Golden Chariot the ore is as rich as ever, much of it being of the same character as that of the Ida Elmore. From the point at which the tunnel taps the ledge a drift runs north 125 feet and south 50 feet. Three stopes are being worked in the north and two in the south drift. The mine is

now in fine shape for working—ere can be taken out faster than teams can be procured to haul it away. We understand that the Owyhee Co's mill has been engaged to work 300 tons. The Minar mill is also constantly running on Golden Chariot ore.

MONTANA.

Post, Jan. 4th: Letter from Phillipsburg, Dec. 20th: Mr. James Richardson arrived in town last evening from a three month's prospecting tour, and reports several small gulches, heading in the same range of mountains, that prospect well. In one, he states, as high as 75 cents to the pan was obtained in the gravel. Mr. Richardson discovered a succession of bar diggings that he thinks will average 30 ft. of gravel, and pay to hydraulic, \$40 to the hand, with an abundance of water handy. * * * A considerable speculation in claims is going on in the Georgetown district; several entire leads have changed hands of late.

Letter from Butte City: The Grey Eagle vein is four feet wide, and specimens which were assayed in Denver City gave over \$700 per ton in silver. One hundred yards north of this is the Original lode. This shows better defined walls than any other in Montana. On the discovery is a shaft 60 ft. deep. Nearly east from the Original is the Parrott lode. This is a strong and well defined vein. A shaft on the discovery, 30 ft. deep, shows the vein three ft. wide. Messrs. Ramsdale and Parks are now erecting a building 20 ft. wide by 50 long, to cover hoisting works. The ore of this lode, with a furnace properly constructed, will be easily worked. Both it and the Original have repeatedly yielded assays of over \$200 per ton in silver. One quarter of a mile northwest from the discovery on the Original, is the Mound lode, located by J. McPhoe. This vein appears to be six or seven feet wide. In the center is a streak of galena, specimens of which were assayed in San Francisco, and gave \$293 per ton in silver, with traces of gold.

In the way of preparations for placer mining next spring, Messrs. Allison and Humphrey are extending their upper ditch across Missoula Gulch, one mile further than it was completed last season. In doing this they run a tunnel 250 ft., cutting through an immense quartz lead named the Black Chief, 25 ft. below the surface. Three or four companies are preparing bedrock flumes. Three miles northwest from here, Geo. Rapp & Co. are digging a ditch from Brown's Gulch to Oro Fino, a tributary of Brown's Gulch. It is intended to carry 900 in. of water. They have good fall for hydraulics, and will use all of the water themselves.

The I. X. L. Co. cleaned up 220 ozs. of retort on Monday last, being the result of a five days run of their 24-stamp mill. We are informed by Mr. Ricker that the company recently purchased the mill in Grizzly Gulch, owned by Mr. Hendrix. The mill has 24 stamps, with the necessary appliances, and in the future will be kept steadily running on rock from the Union No. 2 ledge.

On the Park lode, the developments now being made by Mr. J. W. Whitlatch, are progressing favorably. There is now on the surface about 300 tons of first class ore ready for the mill. The shaft is now 130 ft. deep, with a crevice 3½ ft. wide, and the indications are that it will continue to widen as the lead is sunk upon.

On Monday night last, the driving shaft of the Philadelphia mill broke, which will cause a stoppage of the works for a week or so.

Messrs. W. D. and J. M. Mitchell have nearly completed their arastras on Granite Gulch, and will be prepared to commence operations next week. They are situated about half a mile above Junction, and are intended to do custom work exclusively. Water is to be used as the motive power, and the arrangements of the wheels and sluices, some six feet under ground, and arastras enclosed in substantial buildings, will enable them to be run the entire winter.

EMERALDA.

NEVADA.

Aurora Union, Jan. 11th: Mr. Redstone, late from Hot Springs, has with him over 80 lbs. of bullion, which would average over \$1 per oz., taken from the furnace of the Dozier Metallurgical Co.

HUMBOLDT.

Unionville Register, Jan. 11th: Several tons of Cumberland ore has been reduced in Holt's mill. The result has not yet been made public, work being immediately resumed on the mine and on the first south extension.

PAHRANAGAT.

Reese River Reveille, Jan. 13th: From Benjamin Evans, who arrived here a day or two ago from Pahranaagat, we learn that the mill which he is engaged in building

for a New York Co. is temporarily delayed for castings. Mr. Evans represents the developments in several locations on the extensive List ledge, especially in those of the Alameda and Webster Co., to be of the very best character. He considers the List to be one of the leading ledges of the southeastern part of the State, and that it will develop several mines. Mining operations are held in abeyance for the present, but the successful reduction of the ores of the district by the new mill will revive hope and restore confidence throughout the district.

REESE RIVER.

Reese River Reveille, Jan. 9th: In the Chihnaluna mine of the Centenary Co., in Newark district, there has been extracted up to the present time fully 1,000 tons of ore, and the supply is not exhausted, but there is a considerable quantity of ore within reach of the stopers. In the lode which extends from the shaft the vein is 11 ft. thick, and carries generally a good quality of milling ore. Extraordinary specimens of rich ore have been produced by the mine, the choicest of which yielded by assay at the rate of \$8,000 per ton.

Jan. 11th: By the stage which arrived last evening, 2,000 ozs. of bullion were brought from the mill of the Social and Steptoe Co. at Egan Cañon.

Some 3,000 ozs. of crude bullion were brought into this city this morning from Rigby's mill at San Antonio.

The ore recently shipped from the Silver Champion mine to Austin yielded at the rate of \$302 per ton.

Jan. 14th: Very beautiful specimens of rich sulphuret ore are produced by the North Star mine of the Manhattan Co. We saw to-day a brace of specimens, designed for a private cabinet, that for unique beauty and high quality of mineral surpassed almost any former production of that mine.

Jan. 15th: Persons recently in from Ophir Cañon state that the mill of the Twin River Co., which was stopped for repairs on the 1st inst., will be set in motion in a day or two. The Murphy mine of the Co. is producing an abundance of excellent ore.

There were brought into the city last evening by the Austin and Belmont Co's stage two bars of bullion from the mill of the Belmont Co.

Silver Bend Reporter, Jan. 11th: From Hot Creek we learn the following: Upon the location known as the Norfolk, adjoining the Merrimac on the south, about 150 yds. from the bed of Hot Creek Cañon, an incline has been commenced and a body of rich ore found. It occurs in a sort of conglomerate, and was at first thrown away as worthless; but an experienced eye having detected chlorides, and now and then a blotch of the black mineral peculiar to the Indian Jim in the dirty-looking mass, assays of it were had, and it was found to contain from \$400 to \$700 of silver per ton. It is owned by the Old Dominion Co. Work upon the Merrimac still continues without interruption. A tunnel is now in progress from the shaft to the eastern wall of the ledge, in which occasional bodies of fine ore are encountered. On the old Dominion mine, work continues upon both an incline and a tunnel. The latter will tap the vein at a depth of 200 ft. from the surface. Schiller & Co. are running the little 11-stamp mill erected by Gould, working about five tons of ore daily, with excellent results. The Old Dominion Co's mill is still running to its full capacity. Gillette & Clark have struck a large and favorable looking ledge on the foothills near the mouth of Rattlesnake Cañon, upon the north side. It is about 8 ft. wide, and shows a large amount of milling ore, but not of a very high grade. A conditional sale has already been made of this claim to parties who are now sinking upon it. It is expected that upon the opening of spring unusual activity will prevail in Hot Creek district, as much capital has already been invested there, and the developments made have resulted favorably. At Morey district, Hall & Co. are still taking from their mines ore of a splendid quality.

Reports from Silver Peak are as follows: The mill of the Great Basin Co. is progressing as rapidly as circumstances will permit. The capacity of the mill will be 40 stamps. The company has about 2,500 tons of ore ready for milling.

We saw at the assay office of Cahill & Bro. yesterday two bars of bullion from the Old Dominion Co's mill, Hot Creek. The bullion was exceedingly fine. There was also a small bar belonging to Judge Farris, from the little 10-stamp mill. It weighed 213 ozs., was .985 fine, and weighed \$271.25. We understand that all of the crude bullion from the Hot Creek mills will hereafter be melted and refined here.

WASHOE.

[In the Stock Circular, in another por-

tion of this paper, will be found late mining news from this district.]

Virginia Enterprise, Jan. 16th: The Empire-Imperial Co. have been delayed in the prosecution of work on their new shaft by the breaking of a large spur-wheel. It will be immediately repaired and work will be resumed.

Jan. 17th: Night before last a drift running westerly from the Halo & Norcross main shaft, on the 930-foot level, tapped a large vein of water. This is supposed to come from the main lead. In cutting the vein of water they also found some very fine ore, but little is known, as yet, of the extent of the deposit.

The Gould & Curry Co. are taking out about 60 tons of ore per day from their upper levels. Owing to their having exhausted their supply of fuel, the mill is now lying idle, and no work is being done on the engine shaft at the mine. Meantime the ore taken out is being stored at the mouth of their lower tunnel, ready for crumpling as soon as the roads improve sufficiently to allow of their obtaining a supply of fuel with which to run their mill.

A fine deposit of ore has been struck in the lower level of the Crown Point mine.

Jan. 18th: Owing to the scarcity of wood, a number of our mills and some of our hoisting works have been compelled to shut down.

Wells, Fargo & Co. shipped from their office in this city during the past week, 1,761 lbs. of assayed bullion, valued at \$32,594.05.

The Gold Hill News, speaking of the body of water lately struck at the 930-foot level of the Halo & Norcross mine, says: This new strike is probably in the main Comstock ledge, west of the smaller pay streak they cut through the other day, and in the vicinity of the winzes sunk for the lower level of the old workings. From all we can learn, the recent rise in the Halo & Norcross stock is based upon pretty good prospects.

NEW MEXICO.

Georgetown (Colorado) Miner, Jan. 2d: The following letter, from a former resident of this place, in relation to the Cimarron mines, Elizabeth district, New Mexico, Dec. 7th, 1867, is interesting. * * * This country has not been prospected except a small portion in the vicinity of Willow Gulch, and the indications for miles around are good. Rich mines have been struck every week since we came. They are dry now—the one thing needful is water, and it will be here in an abundance by the 1st of April. Davis & Co. are surveying a large ditch, some 22 miles in length, which will give water to a large majority of the claims. Mr. Pollock, of Denver, struck a rich pay streak at the mouth of Humburg Gulch on Thursday; and to-day we hear a good report from Mill's Gulch, about two miles north of this. We are doing some heavy prospecting between the two, and expect to record our own success in a few days. Charley Kennedy, in company with some other miners, from Georgetown and Central, were prospecting last week about 20 miles west of this on the Rio Hounda, a tributary of the Rio Grande. They found some old Spanish diggings, said to have been worked several hundred years ago. They opened an old shaft and found the skeleton of a man, standing upright. He had some mining tools, and in his pan they found a tolerable prospect. La Blanco, the veteran mountaineer and trader, acted as their guide. He is familiar with the legends and traditions of the Pueblo Indians, and knows, if any man does, the location of these ancient mines. Before Kennedy & Co. opened this old shaft, he stated, that according to Indian tradition a large number of Spaniards had been buried alive by them while working in the mines, and this seems to corroborate their story. Judge Blackwood, Kit Carson, La Blande & Co., bought a large tract of land embracing these mines some years ago, and have, I believe, as good a title as the country affords. They, however, place no obstacle in the way of the miner.

OREGON.

Jacksonville Sentinel, Jan. 11th: This week we had occasion to take a trip up Jackson Creek, where we found everybody and everything snowed in. At the Occidental quartz mill the snow was about one foot deep, and up the creek about half a mile further, the snow is said to be two ft. deep. Col. Drew has got the Occidental quartz mill about ready for running again. He has put about \$1,200 worth of improvements on the mill. Some entirely new pieces of machinery have been added, and it is the belief of the owners of the mill that they can save all the gold. A contract for crumpling 100 tons of quartz has been closed and the mill will proceed to work as soon as the quartz is delivered.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—John Sleet.

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—J. C. Felton.

After as careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—Wm. H. Hill.

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—F. W. Hatch.

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and paragraphs. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text-books.—James Denman.

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—Martin Kellogg.

I recommend it to all those who wish to obtain a book that will give them definite ideas on this subject, and teach them to express their thoughts and feelings in a clear, simple, and forcible manner.—Caroline L. Atwood.

I regard the book about to be published as far superior to any work extant upon that subject.—Wm. S. Hunt, A. M.

I believe the work will be a valuable and much needed addition to our school text-books.—Herman Perry.

You have brought the results of a profound analysis, and made them available, in a practical form.—I. H. Brayton.

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and as advocates at the forum.—John Curry.

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. * * * It will soon become a necessity in every lawyer's library.—Charles A. Tuttle.

Its clearness and comprehensiveness make it easy.—G. W. Boies.

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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office, Jan. 11, 1866.

Mr. C. T. Itaney is our duly authorized agent for Sacramento County, Nov. 29, 1867.

Dr. L. G. Yates is our duly authorized traveling agent, July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper, July 15, 1867.

Mr. H. C. Northrop, is our duly authorized agent for Oregon, Washington, Idaho, and Montana, Aug. 17.

OUR NEW YORK AGENCY.—Mr. M. A. LATHROP, formerly of California, is our authorized Agent in New York. Parties in the Eastern States who desire to subscribe for or advertise in the MINING AND SCIENTIFIC PRESS, can address Mr. L., at No. 725 Broadway, for the present. Nov. 26, 1867.

San Francisco:

Saturday Morning, Jan. 25, 1868.

Notices to Correspondents.

FLORIST—Nothing is more common in floriculture than to observe the defective properties which varied colored flowers bear towards each other. Occasionally the eye sees nothing but breadths of blue or white; at another place it is dazzled by yellow, scattered in profusion—Indian pinks near the China rose and aster, and dahlias of varied red tints grouped together. For ornament, the principal rule to be observed in the arrangement of flowers, is to place the blue next to the orange and violet ones, in contiguity with those of a yellow color, whilst red and pink flowers never display to so much advantage as when surrounded with bright verdure intermixed with white flowers. The latter may be interspersed with advantage among groups of blue and orange and violet and yellow-colored flowers. In order to produce the most effective contrast, the associated flowers should approximate as nearly as practicable to the same size, and in many cases the color of the sand or gravel forming the surface of the adjoining walks should form an item for consideration.

AQUARIUS, Nevada.—Chemically pure water is not colorless, as is generally supposed, but is of a pure but feeble bluish tint, which only becomes visible to the eye when light has penetrated through a considerable thickness of that fluid. This fact is demonstrable by the following simple experiment: Obtain a glass tube six feet long and two inches wide, which must be blackened internally (with lamp-black and wax) to within an inch of the end, the latter being closed by cork. Throw a few pieces of white porcelain into the tube, which, after being filled with chemically pure water, must be set vertically on a white plate. On looking through this column of water (six feet deep) at the pieces of porcelain, which can only be illumined from below, by white light, it will be perceived that the pieces of porcelain appear of a light blue tint, the intensity of which will be found to diminish in proportion as the column of water is decreased, or the reverse.

LEARNER.—According to Laurent, carbon is deemed the only elementary body which is without an analogue. In all treatises on chemistry, it will generally be found compared sometimes with hydrogen, sometimes with boron and silicon; but these comparisons can only justly be made in one particular series of compounds, viz: the affinities of these substances for oxygen. In other respects, the analogy is incomplete. No instance has so far been adduced in which a chemical compound containing carbon can have that element replaced by some other simple body, which latter, despite of such permutation, still retained its principal properties. Carbon substitutions, therefore, are considered to be non-existent.

THE CHINESE NEW YEAR.—Yesterday was the Chinese New Year's—that anniversary occurring in January this year, instead of February, as usual, on account of the necessity of occasionally dropping a few days to make their bunglingly arranged calendar come out square with the seasons.

The Proposed Mining College.

Mr. Stewart's bill for the establishment of a National Mining School, is receiving pretty rough handling by the California Legislature. We presume that neither the author of the bill, nor any other man who has read it, would pronounce it just what such a bill should be; but we can see no reason why the subject should not be approached candidly and dispassionately. There appears to be a very great degree of unanimity on the subject of government aid, in some form or other, for the support of one or more mining schools. The experience of every mining country in Europe is unanimous in behalf of the utility, and in fact of the indispensableness of such institutions. At present we are entirely dependent upon European schools for all who are in any degree competent to superintend extensive and intricate mining and metallurgical operations. Nearly one-half of the students now pursuing their studies at the well known mining school at Freiberg, are from the United States; a fact which speaks most unmistakably of the importance of the establishment of such a school in our own country, and affords the most indubitable evidence that our people fully appreciate the advantages of that class of practical education.

The difficulty with our legislators appears to be the location and mode of selecting the management of such a school. Discussion upon these points is eminently proper, and great care should be exercised in the adoption of either; but hard words and uncalled-for personal reflections, will not lead either to unanimity or calm judgment in that direction. We need the school, and it is to be hoped that all partisan feeling and local prejudices will be held in abeyance, while the matter is calmly and quietly considered. At the proper time we shall have something to say upon the matter; and we shall endeavor to give a reason for our opinions. We have already, in advance of the late legislative discussion, recorded our protest against the manner in which Mr. Stewart's bill provides for the selection of the Directors, and we presume that before its final passage it will be modified in that respect.

With regard to the Commission which the bill would send to Europe, we presume the Department, or the officer to whom such selection will be delegated, will act with due circumspection, and select a delegation for its personal fitness. Of course none but such as are properly qualified by education and experience should be appointed to such a Commission, and we presume none but such will be done in regard to the selection of a location for the school until the report of that Commission is before the people. Such a report should combine facts and suggestions which ought to have an important bearing on the matter.

It is well and proper that our Legislature should take action in the matter; but that action should be such as to command the respect of those upon whom it is designed such will be so appointed. Nothing will to have an effect, rather than to generate unkind feelings. The matter should be dispassionately considered and discussed, and the entire question, as viewed by a State more largely interested than any other in the establishment of such a school, should be plainly and concisely laid before the National Congress. We trust wise counsel will prevail at Sacramento, to the end that the greatest good may be effected.

CORRECTION.—It appears that we were in error in locating "a cheap oil mill" lately built by "Dr. McDaniel," in the neighborhood of Santa Clara. The mill is just below Yuba City on Feather river. The error occurred in mistaking a clipping from the Santa Clara Argus for a local item, instead of a portion of a correspondence from Yuba county.

The Dozier Process.

Most of our readers have doubtless heard more or less of the "Dozier Process," which purports to be a new method for separating metals from their ores, which, it is claimed, is at once easy, rapid, and more complete than any process heretofore employed. This process is the discovery of Dr. A. T. Dozier, of Dutch Flat, in this State. A company has been recently formed to try it upon a large scale, and furnaces, etc., were erected for that purpose at or near Benton, Mono county.

The process is said to consist in mixing with the ores certain chemical agents, bringing and holding the mass at a low red heat, until the affinities forming the metalliferous compound are destroyed. The mass becomes a stiff paste, and on cooling resembles scoria. The metals of silver, copper and lead in the ore, take on a globular form, and remain to a great degree separate in the mass, not forming an alloy. The copper appears in an oxidized, granulated form. The paste on cooling becomes exceedingly brittle, and is easily reduced to powder; the silica and non-metalliferous portion being washed away leaves the silver, gold, copper, etc., in separate masses to be collected. Experiments which were made on Camanche ore, from Mono, and on Ophir and Reese River ores, are said to have resulted quite satisfactorily. The ore from the Camanche has hitherto baffled all attempts to reduce it; yet, with this process two experiments were made on it with most marked and satisfactory results. On pulverizing the brittle mass in a mortar, and washing away the earthy residuum, about 80 per cent. of the silver contained in the ore, in a nearly pure metallic form, was obtained, the remaining portion of the silver, with a trace of gold, remained unseparated with the copper, the copper being in an oxidized granulated form. The copper, with the gold and silver unseparated from it, can be run into bars, and its fineness determined. The silver obtained pure can also be run into bars. It is very difficult to determine from the above, whether there is anything new or valuable in the process. On general principles, we have but little faith in "new processes;" still, it is well that all reasonably promising projects should be tried before being utterly condemned.

THE PROCESS IN OPERATION.

We learn, by a letter dated at Benton, Mono County, January 1, 1868, that the Dozier Metallurgic Company put their works in operation, a few days since, and have produced several silver bars; also several samples of the oxides of copper, antimony and lead, in the form in which they are extracted from the mill by the Dozier process of refining. Samples of the work were to have been forwarded to their office at Dutch Flat. We should be pleased to hear more definitely and circumstantially from the Dozier process.

Our correspondent further informs us that the reducing and refining furnaces were designed by the joint labors of Dr. Dozier and W. A. Dond. The Company have taken steps to procure a patent for this discovery.

AS AN ADVERTISING MEDIUM for foundrymen and manufacturers of mining machinery, the *Mountain Messenger* of Downieville holds a commanding position, being located in one of the richest and most extensive mining sections of the State. Besides being the only paper in Sierra, with a large home circulation, it has many subscribers on the south side of Plumas and the north of Yuba. The *Messenger* is an 32-column paper, has lately appeared in a new dress, and we are pleased to note its continued prosperity.

BENEFIT BALL.—The Carpenters' Eight-Hour League, No. 1, will give a ball at Union Hall, on Tuesday evening next, in aid of the relief fund of that association.

THE PETROLEUM BURNER at 417 Mission street is still at work, and daily attracts crowds of curious and interested visitors. They are now using but two of the upper burners, and a single one underneath, for heating up the retort. The new retort, of which we spoke last week, is now completed, and will be ready for operation on Monday. This retort is twenty and a half inches long, sixteen wide, and eight high. It should be placed so that the top will come within nine inches of the fire-plate of the boiler, and the bottom raised about fourteen inches above the hearth of the ash-pit. This description will show the space which it will occupy in the furnace. In setting it in a furnace already constructed, it may be placed as high as is necessary in order to place the burners at a proper distance from the fire surface of the boiler.

The retort now in use is making steam for a single return-flue boiler of the following dimensions: boiler, twelve feet long with thirty-inch shell; twenty-six three-inch flues; iron front furnace, with brick sides and backs. Steam is kept at an average of one hundred pounds pressure.

The new retort will be able to make steam for a twenty-horse power engine by the use of a three-eighths-inch oil feed pipe, a three-eighths-inch steam jet, and a one-inch jet of air, under from one-half to two and a half pounds pressure, regulated according to the character of oil used. Oil from 20° to 30° density can be employed.

The cost of the apparatus for burning the petroleum, predicated on the use of an air-pump now being constructed by Mr. H. R. Martin, of this city, will be as follows:

Air pump.....	weight 150 lbs.	Cost \$45 00
Retort.....	145 "	25 00
Pipe, valves, etc.....	60 "	75 60
Total weight.....	355 lbs.	Cost \$145 60

This cost will not include the right to use the burners, the terms of which are not yet fixed. We shall continue to note the progress of this experiment as fast as anything new is developed. In our remarks last week with regard to the cost of anthracite coal in this market, we should have named the sum of about \$22, instead of \$16.

THE YOSEMITE GRANT.—Many words and much feeling is being expressed, both in and out of the Legislature, with regard to the grant of land to certain settlers in the Yosemite Valley. If rightly approached, the matter would have been a very plain and a very simple one; but unfortunately certain parties have succeeded in so mixing it up with politics and personal controversy, that it has become a very unpleasant and perplexing question. The State has accepted the territory as a trust for the people, with the express condition that no part of the same should be alienated. Certain rights in equity have grown up thereon, which Congress or the State should adjust. If the State undertakes to settle this matter, what right can she have to use the property granted as a means to that settlement? An honest man would have no difficulty in answering the question. Surely she must either go outside of the property in question for the means, or decline the custody thereof. She cannot either legally or morally, give away that which is not her own. The duty of the State is plain; she must either allow the property to again revert to the United States, or settle the matter in equity in such a manner as not to compromise the honor of the State. She has the power to lease for term of years. If politicians and meddlesome men would keep quiet, the parties interested in the equity might easily be satisfied, and soon be realizing a larger income from their improvements, than they could possibly have done if the State and nation had not expended so much money in advertising to the world the attractive features of their interesting and fortunate locality. If the Messrs. Hutchings and Lamson are wise, they will repudiate the action of their misguided or mischievous friends, and cheerfully accept, as a favor, what the well-meaning members of the Legislature would undoubtedly cheerfully accord to them.

CHOATE'S IMPROVED PADDLE WHEEL.—We have examined a model of a new paddle wheel for steamboats, known as Choate's Improved Paddle Wheel, which was patented Oct. 10th, 1865. In this wheel the floats are placed diagonally across the face of the same, being secured to a central and two outside sets of arms. Two sets of paddles are thus arranged in such a manner as to cross each other at or nearly at right angles, at the center set of arms. The paddles are set and curved similar to the Jones and McComb wheel, which was recently tried on the steamer John S. Whipple; only the latter consists of single paddles, placed parallel, instead of being angular or crossed and set at opposite diagonals. This wheel is the invention of Orin W. Clarke, of Newburyport, Mass., whose brother-in-law, J. W. Emerton, of this city, has been appointed agent for the same for this coast, and for China and Japan. In the construction of this wheel the rule adopted is that the distance across the face should be one-third the diameter of the wheel; and that each float or paddle should correspond, in its curve, to one-eighth of the entire curve or revolution of a screw, and in its location diagonally across the face of the wheel, should reach through one-eighth of the circumference of the wheel. This construction is designed to avoid the lift and plunge occasioned by the entrance and emergence of the floats of the ordinary wheel into and from the water. A great saving of power is also supposed to be effected, as well as avoidance of the jars and concussion which form such an unpleasant feature in the operation of ordinary steamboat wheels. We understand that our steamboat men who have seen the model, are very much pleased with the principle, and measures are in process to secure a practical trial of the invention at an early day. The model may be seen for a few days at this office.

NEW LOCOMOTIVE.—Another new locomotive has been turned out at the Union Foundry the past week. It has been built for the Black Diamond Co's railroad, at Mt. Diablo. This engine has been christened D. O. Mills; it is a G-wheel, direct action, tank engine.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. LUTY, Secretary. Office, 305 Montgomery street, corner of Pine, San Francisco. 2v15

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trade supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 2v15-3m

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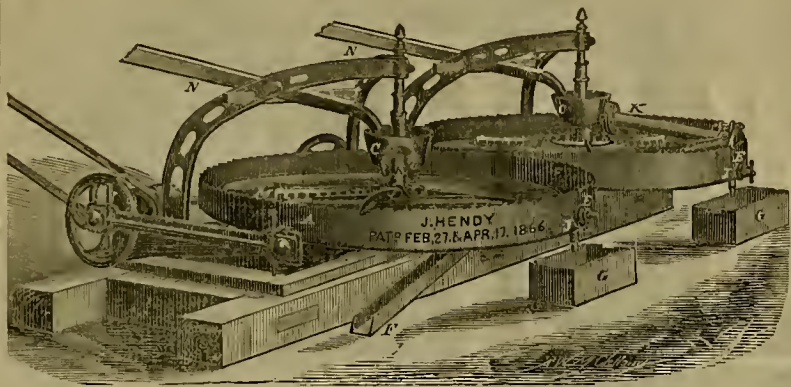
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Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. THEY ARE WARRANTED TO WORK SATISFACTORILY.

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets.
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL (7 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (4 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOOD MILL (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO., Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M & M. CO. (3 Concentrators).....	Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.

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The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.
J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

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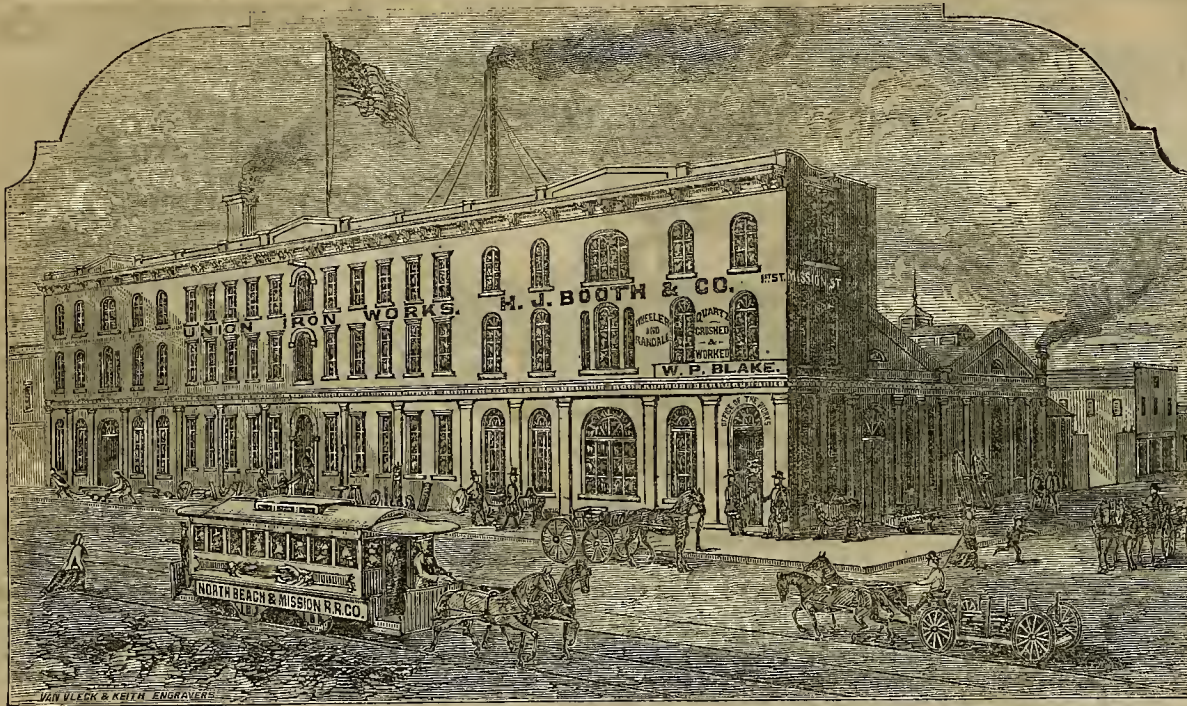
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3v16-3m9p



Established in 1849--Corner First and Mission streets, San Francisco.

HAVING INCREASED OUR FACILITIES IN EVERY DEPARTMENT, WE ARE NOW prepared at the shortest notice and at the most reasonable rates, to furnish all kinds and description of Machinery, including Steam Engines, Mining Pumps of all kinds, Hoisting Gear, Gas Work, Laundry Machinery, Architectural and Ornamental Castings, Sugar Mills, Saw and Flour Mills, Water Wheels of all kinds, Hay, Rags, screw and Drop Presses, Coining Machinery, File Drivers, Bark and Malt Mills, and all kinds of Castings.

ENGINES.—Marine Engines, Oscillating and Beam; Stern and Side Wheel Boats, Locomotives, Stationary Engines, Horizontal, Upright, Oscillating and Beam, from six to fifty inches diameter. Also, Scott & Eckart's Adjustable Cut-off Regulator—best in use; W. R. Eckart's Balance Valve for Stationary Engines; Woodward's Patent Steam Pump and Engine.

BOILERS.—Locomotive, Flue, Tubular, Upright, Cylinder and Cornish, and every variety of Boiler Work. All sizes of tubes and pipes for pumps.

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AMALGAMATING MACHINERY.—Wheeler & Randall's improved Tractory Curve Pan, Zenas Wheeler's improved flat bottom pan, Beldin's pan, Yeatch's tubs, Prater's concentrators, Wallace's pans, Beers' pan, German Barrels, Astra Gearing, Chile Mills, Settlers of all descriptions, Retorts of all sizes and shapes, for Silver and Gold, Portable Stamp Mills, Strauch Batteries, for wood or iron frames, Dry Crushing Batteries, or machines with the latest improvements, every variety of Stamps, Mortars, Cams, Pans and Tubs. BLAKE'S PATENT QUARTZ CRUSHERS, of all sizes.

OIL BORING TOOLS AND MACHINERY.—Of the latest and most approved construction, made from drawings lately made by Prof. Blake at the oil wells in Pennsylvania. We have the facilities for working gold and silver quartz and other ores, to test their value, by the hundred weight or ton.

Russia Iron Screens, of all degrees of fineness and of all qualities of Iron. All work done in the best manner at the lowest cash prices.

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TEAM ENGINES AND QUARTZ MILLS
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Self-Adjusting Piston Packing,
Requires no springs or screws; is always steam tight;
without excessive friction, and never
gets slack or leaky.

WHEELER & RANDALL'S
NEW GRINDER AND AMALGAMATOR
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AMALGAMATOR AND SEPARATOR,
Knox's Amalgamators,

WITH PALMER'S PATENT STEAM CHEST,
Superior for working either GOLD OR SILVER ORES, and
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years' continual working.
Genuine White Iron Stamp Shoes and Dies

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the shortest notice, the most perfect machinery for recovering
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Steam Engines, Boilers,
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Dunbar's Patent Self-Adjusting Steam Piston
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Manufacturers of

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Wine, Elder, Cotton and Tobacco Presses
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STEAM ENGINES AND BOILERS,
Of all sizes, constantly on hand; Quartz Mill Shoes and
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Packing, requires no springs or screws; is always steam-
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MACHINERY OF ALL DESCRIPTIONS
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THE only exclusively Boiler Making establishment on the
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Makers. All orders for New Work and the repairing of Old
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Old Stand, corner of Bush and Market streets, opposite
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ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
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Nails, Rivet Braces, Hinges, Ship and Steamboat Bolts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
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nections of all sizes and patterns, furnished with dispatch.

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Moore's Grinder and Amalgamator, Brodie's
Improved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

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NEPTUNE IRON WORKS,

Corner of Mission and Fremont Streets,
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MARINE,
Locomotive,
And all kinds of
HIGH PRESSURE
Steam Boilers
MADE.

All Boilers guaranteed and
tested by U. S. Boiler In-
spector before sent out of
the Shop, at Shop expense.

All kinds of Sheet Iron and
Water Pipe, Coal Oil
Stills, Wrought Iron
Worms, etc., etc.
Manufactured to Order.
Old Boilers Repaired
D. CAMERON.

6v12-1y

JOHN LOCHHEAD'S Steam Engine Works,

Beale street, near Mission, San Francisco.

STEAM ENGINES OF EVERY DESCRIPTION BUILT
to order—Marine, Stationary, or Locomotive.

HOISTING AND PUMPING ENGINES,
PORTABLE ENGINES, OF ALL SIZES,

DONKEY PUMPS, Etc., Etc., Etc.

The attention of the parties engaged in shipping or inland
navigation is called to the

Superior Workmanship

of Mr. LOCHHEAD, who has been in the business in San
Francisco for the last fourteen years, and enjoys the reputa-
tion of having built ONE HUNDRED AND SEVENTEEN
STEAM ENGINES.
Screw Propellers of all kinds, and Steam Boat Machinery
generally, made to order, and warranted to give perfect
satisfaction in every particular. 6v12-3m

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MARINE ENGINES,
AND ALL KINDS OF

MACHINERY FORGING.

All kinds of Ship-smithing and Mill work manufactured to
order. Jobbing of every description promptly attended to.
All work done guaranteed. 13v14-1m

ELECTROTYPES CUTS, ENGRAVINGS, ETC.—Our Job Printing
Office is abundantly supplied with elegant engravings, or
name-plates, and other embellishments to suit the various
branches of industry in this State.

CAPITAL AND LABOR.—The effect of the
present dullness of business in our Eastern
cities, shows how closely the interest of
capital and labor are bound together, and
how foolish is the doctrine of an "irrepre-
sible conflict" between them. The weight
of the present depression falls directly upon
capital; but how quickly it communicates
to labor. The injury sustained by the first
is felt as sensibly by the second as if they
were limbs of the same body. The same
sympathy would be apparent if the blow
fell first upon labor. Capital would, in that
case, feel the shock, and would suffer
equally in the consequence. The present
experience is not needed to demonstrate
the close affinity between capital and labor;
but since the doctrine has been earnestly
advocated of late years, that they are her
natural and hereditary enemies, it is well to
note the contrary evidence which is now
patent to a large number of unemployed
workmen and others. Their number in
New York alone is not less than 50,000.

When a blow is struck upon the head of
a wedge, the effect is as the sum of the sides
to the head of the wedge.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by
which a number of European and Asiatic countries, hith-
erto beyond the reach of our mail communication except
by letter, are brought within the range of delivery of all,
or nearly all, United States mail matter. It is a singular
fact, unknown probably to most persons who have not
occasion to learn it by unpleasant experience, that there
was a considerable region in the civilized world where
an American traveler might not receive a newspaper di-
rectly from home.

Under the arrangement now completed, prepayment of
postage (sometimes at high rates), is made necessary in
all cases. The following official statement gives a full list
of the countries—with some of which there has been regu-
lar communication—that are now included in the delivery
by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter
(periodicals, etc.) sent from the United States to coun-
tries in Europe and Asia, by Bremen or Hamburg
mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.
Hamburg, by Hamburg mail—2 cents each.
Prussia, Austria and German States, by Bremen and
Hamburg mail—3 cents each.
Lunenburg, by Bremen mail—3 cents each.
Lunenburg, by Hamburg mail—3 cents each and 1 cent
per 1½ ounce.
Schleswig Holstein and Denmark, by Bremen or Ham-
burg mail—3 cents each and 1 cent per 1½ ounce.
Sweden, by Bremen or Hamburg—3 cents each, and 1½
cent per 1½ ounce.
Norway, by Bremen or Hamburg—3 cents each, and
3½ cents per 1½ ounce.
Holland, by Bremen or Hamburg—3 cents each, and 1
cent per 1½ ounce.
Russia, by Bremen or Hamburg—3 cents each, and 1
cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—4 cents each.
Italy, by Bremen or Hamburg—5 cents each.
Turkey, by Bremen or Hamburg—3 cents each, and 5½
cents per 1½ ounce.
Greece, by Bremen or Hamburg—3 cents each, and 5½
cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg
—3 cents each, and 1½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg
mail via Marseilles—3 cents each, and 9 cents per 1½
ounce.
Austria, India and China, by Bremen and Hamburg
mail, via Trieste—8 cents each, and 2 cents per ½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.
Hamburg, by Hamburg mail—1 cent per ounce.
Prussia, Austria and German States, by Bremen or Ham-
burg—1½ cent per ounce.
Lunenburg, by Bremen mail—1½ cent per ounce.
Lunenburg, by Hamburg mail—1½ cent per ounce, and
1½ cent per 1½ ounce.
Schleswig Holstein and Denmark, by Bremen or Ham-
burg—1½ cent per ounce and 1½ cent per 1½ ounce.
Sweden, by Bremen or Hamburg—1½ cent per ounce,
and 2 cents per 1½ ounce.
Norway, by Bremen or Hamburg—1½ cent per ounce,
and 2 cents per 1½ ounce.
Holland, by Bremen or Hamburg—1½ cent per ounce,
and 1½ cent per 1½ ounce.
Russia, by Bremen or Hamburg—1½ cent per ounce,
and 1 cent per ½ ounce.
Italy, by Bremen or Hamburg—1½ cent per ounce, and
2 cents per ½ ounce.
Turkey, by Bremen or Hamburg—1½ cent per ounce,
and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—1½ cent per ounce,
and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—
1½ cent per ounce, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail
by way of Marseilles—1½ cent per ounce, and 9 cents per
1½ ounce.
Austria, India and China, by Bremen or Hamburg mail,
by way of Trieste—6½ cents per ounce, and 2 cents per ½
ounce.
These charges are in each case in full to destination,
combining rates between the United States and Bremen or
Hamburg, and the rate beyond Bremen and Hamburg to
points of delivery.

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Blacksmith and Machine Shop.

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Job Grinding and Polishing done at shortest notice.
Special premium awarded at the last State Fair, Sacra-
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D. & W. FOURNESS, Prop'rs.

STEAM ENGINES,

Flour and Sawmills, and MACHINERY of all descriptions
made and repaired at shortest notice.
Particular attention paid to repairing Reynolds' Cut-off
6v13-1y

NEW GRENADA MINES AGAIN.—The Virginia Enterprise of Jan. 18th, gives a portion of a letter recently received from Bernard Nauman, an old resident of that city, now in Barbacoas. We quote:

Mr. Nauman says that Louis O'Connor, well known in this city, and the man whose first big raise in the New Granada mines of some \$20,000 caused the big and disastrous rush to that region a year or two since, made a still bigger raise last summer, taking out in three months about 1,000 pounds of gold. He paid all expenses and received half of the gold taken out. The writer says it is known that he took away 420 pounds of gold, and it is thought that he might have had more. Mrs. O'Connor, who was also there, took away fifty pounds on her own hook. Mr. Nauman estimates the haul made by O'Connor on his second visit to the mines at \$110,000. He speaks of the arrival in the mines of three gentlemen from San Francisco, Messrs. Henry, Fowler and Pierce. They had been looking around and were about taking a bank high up on the river Nambi. Mr. Nauman is anxious to get out of the country, having prospected four or five banks without making a cent above expenses, and enduring all kinds of hardships and abuses at the same time. He advises all his friends to give the New Granada mine a wide berth if they don't wish to become prematurely old and be brought to the verge of suicide once a month.

RAILWAY RISKS.—The statistics of European railways bring out some very droll results—if such an epithet is admissible in treating a subject that pertains to human life. They show that the absolute risk of a person's losing his life in a rail car is less than his being struck by lightning, or being hanged; that a passenger shooting along by steam power, at the rate of seventy-two miles an hour, is more secure from bodily injury than the pedestrian in a crowded city, or a gentleman driving his private carriage on a country road; and that the oil-begrimed and sooty pair who ride on the engine, on whom we look with pity, as predestinated for destruction, have an average immunity from danger, and enjoy a better state of health than we, whose personal appearance may be more presentable, but whose pity is entirely gratuitous. A person debilitated by dyspepsia or pulmonary disease, would question the sanity of his physician if recommended to take the position of fireman on a locomotive; yet statistics show that the employment tends to counteract these diseases, and to strengthen all the vital functions of the system.

GOLD IN NORWAY.—Mr. Ashburn furnishes the Nevada Transcript with a translation from the Scandinavian of October 17th, in regard to the discovery of gold mines of almost fabulous richness in Norway: "These fields are found in the northern part of Norway. It is said that a tributary of the Tana river, which forms, in part, the boundary between Norway and Lapland, on account of the late spring and high water, changed its channel in one place, and in the old bed of the stream gold was found; not only in fine dust, but also in large lumps. One person who has been in California states that the locality where this discovery was made resembles very much the gold fields of that State. Gold is also said to have been found in Alten. The Christian Morgenblad has information from Finmarken that wages for workmen engaged in gold washing in the rivers have gone up several dollars specie per day."

SOMETHING NEW AND GOOD!

TRY IT! PRESERVED COFFEE,

PREPARED FROM

THE BEST OLD GOVERNMENT JAVA COFFEE,

Condensed in the form of a Paste, by a process patented September 3d, 1867. One ounce equal to two of the best Ground Coffee, and suitable for any gentleman's table. Preserves its strength and flavor without deterioration in any climate, and without regard to length of time.

If you want Chicory, apply it yourself.

Olive our Coffee a trial, and if it is not fifty per cent. cheaper and better than any other, we will return your money.

FRANK SILVER & CO.,
No. 10 Stevenson street, near First,
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Copperas! Copperas!

75,000 LBS. IMPORTED COPPERAS-SULPHATE
of Iron—for sale in lots to suit, by
BENJ. BRADY, 103 California street,
S. W. corner Davis, up stairs.



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A. de LEO de LAGUNA. JAMES VINSONHALER.

**Stair Work of all kinds,
MADE TO ORDER**

And Shipped to all parts of the Coast.

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STAIR BUILDER,**
No. 49 Beal street,
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SAN FRANCISCO.
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**Newel Posts and Balusters
CONSTANTLY
On Hand and for Sale.**

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Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family Journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

THE GOLDEN ERA

Is the most universally popular of all the Weekly journals. It presents forty-eight columns, containing the greatest possible variety of Valuable and Entertaining, Original and Selected matter. It is a welcome guest in Cottage and Cabin; the favorite at the fireside in city and country; the most useful, agreeable and altogether desirable publication for California readers and their kindred and friends in the Atlantic States, Europe and elsewhere. Every household in the mountains and valleys, the cities, towns and mining camps of California, and throughout the Pacific States and Territories, should receive and welcome THE GOLDEN ERA as a regular weekly visitor. Inspired with the genius of the age, it is progressive, and aims not so much at distinction as a newspaper, as at honorable success in its capacity of a great Moralizing and Improving Influence. Exercising a positive power for good, and wielding a permanent influence, many able and eminent writers choose its columns as a means of communicating with the public. No effort will be spared to make it a thoroughly California newspaper, and worthy of the support of all classes of our citizens.

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BRIGNARDELLO, MACCHIAVELLO & CO.

12v14-6m

GRIDLEY'S PATENT WEATHER STRIP FOR DOORS.

This invention constitutes a most simple and inexpensive means for preventing the ingress of water beneath outside doors. It is effective and cheap, and can be readily

Adjusted to any Door in Use,

And presents neither hindrance to entrance nor unsightly incumbrance to the nearest doorway.

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LUMP LEHIGH AND CUMBERLAND COAL, IN ANY
quantity, sacked and shipped to any part of the coun-
try, by
JAS. E. D'AVILE, General Dealer,
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**SAVE YOUR LIFE, SAVE YOUR MONEY, AND RE-
store your health, by using DR. L. M. BYRNE'S ANTI-
NOTE FOR TOBACCO. This is not a substitute, but a cure**
for Chewing, Smoking and Snuff-taking. Fifty cents per
package, sent on receipt of money. Address TRAVEL-
ER'S, 32 Merchants' Exchange, San Francisco. 2v16-3m

Pratt's Abolition Oil.

FOR ABOLISHING PAIN—THE BEST REMEDY IN
existence for Rheumatism, Neuralgia, Paralysis, Head-
ache, Toothache, Sore Throat, Diphtheria, Weak, Swollen and
Said joints, Contracted tendons and Muscles, Cramps, Colic,
Diarrhea, Cholera, Faints in the Breast, Lame Back, and
all aches and pains. It is the poor man's friend, and the
best family physician. Full directions accompany each
bottle. Price 50 cents and \$1 per bottle. For sale by all
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CO., Druggists and Chemists, 531 Sacramento street, op-
posite what Cheer House, San Francisco. 10v14-ly

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Miners' Foundry

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PROPRIETORS,**

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POWDER MILLS, PAPER MILLS**

Steam Engines of all Kinds.

Amalgamators of all Kinds.

**MINING PUMPS, HOISTING WORKS,
OIL WELL TOOLS, ROCK BREAKERS,**

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**Machinery and Castings of all kinds, either
of Iron or Brass.**

**Boilers and Sheet Iron Work in all its
Branches.**

**Shoes and Dies of White Iron, manufactured
for and imported by us at a specialty for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.**

**Russia Iron Screens, of any degree of fineness.
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.**

**W. H. HOWLAND E. T. KING,
H. B. ANGELL, CYRUS PALMER.**
13v14-qr

BAURHYTE, McAFEE & SPIERS, BOILER MAKERS AND GENERAL MACHINISTS,

Howard at, between Fremont and Beale, San Francisco.

**Plano or Tubular Boilers, with plain circular or spiral
courses. Upright Fire or Tubular Boilers, Locomotive and
and Marine Boilers, and Wrought Iron Tanks of every de-
scription.**

**Hydraulic Pipe supplied at reasonable rates. In or-
dering, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to
be used.**

**Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in re-
pair with promptness.**

**To Boiler Makers and Machinists in the In-
terior.—The firm is prepared to furnish estimates of
Boilers, so they may be made, drilled and punched, and attend
to the selection and forwarding of Iron for Boilers, Pipes
and other purposes.**

**Plans, Drawings and Specifications.—The firm
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.**

**To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their inventions, giving them the benefit
of their practical knowledge in the construction of the ma-
chinery, and attending to the manufacture and introduc-
tion of their inventions.** 1v18ff



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No. 226 Fremont st., bet. Howard & Folsom

All kinds of COPPER WORK done to order in the best
manner. Particular attention paid to steamboat, Sugar
House and Distillery work.

Repairing promptly and neatly attended to.
13v11

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" YOSEMITE.....
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One of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), for
Sacramento and Rockton, connecting with light-draft
steamers for Marysville, Colusa, Chico, and Red Bluff.

Office of the Company, northeast corner of Front and
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Mining Secretary.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST
five years as Secretary of various mining companies,
feels fully competent to serve in that capacity. Any par-
ties wishing to secure the services of a Secretary can be
accommodated on reasonable terms. Information given, and
all necessary papers correctly made out.

Having had a long experience in the purchasing of goods
and machinery for miners, parties in the mines will find it
to their advantage, where purchases agents are employed,
to send their orders to the undersigned.

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Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER:

Black Diamond, in 1b canisters.
do do in 1/2b canisters.
do do in 1/4b kegs.
Hunter's Pride, in 1b canisters.
do do in 1/2b canisters.
do do in 1/4b kegs.
do do in 1/2b kegs.
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Pioneer Mining School,

ASSAY OFFICE

—AND—

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By my Practical Mode of Teaching, any person of ordinary ability can learn to assay Ores in three lessons, and the working of all the ordinary and refractory ores in a few weeks.

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My charges are from \$50 to \$200.

Ores of every description assayed and worked
JOSEPH MOSHEIMER,
Fr. Chemist, Metallurgist, C. E., etc.

Office, 323 Montgomery street. Works, 2,005 Powell street.
3v16-3meow

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CHLORINATION PROCESS,

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Jan. 1, 1888.

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DR. DANIEL BREED,

Solicitor of Patents and Consulting Chemist,

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Office—319 California St., San Francisco.
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No. 114 Montgomery Block, San Francisco.
Will examine, survey and report upon mines, and consult and advise concerning investments in mining property, or the machinery management and expenditures of mines.
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No. 422 California street, corner of Leidesdorff.

Drawings of Models made for parties applying for patents at Washington or London.
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Attorney and Counsellor at Law,

Court Block, 636 Clay Street,

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2v15-1qy

J. W. WINTER,

DENTIST.

Office, 647 Clay street.....San Francisco.
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Practical Mining and Milling Processes Described.

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—OF—

NEVADA COUNTY,

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Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Chlorine and other processes; Geological Formation of the most noted mines in California, etc., etc.

COMPILED BY EDWIN F. BEAN.

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Treatment of all Deformities of the Body, by DR. A. FOLLEAU'S process, 624 Washington street, up stairs, Washington Baths Building, between Montgomery and Kearny streets.

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Has his studies and manufactures in the same building. Every kind of Apparatus, Trusses, Orthopedic Instruments, Artificial Limbs, etc., are manufactured and applied by himself.

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LEAVE WHARF, CORNER OF FIRST AND BRANNAN streets, at 12 o'clock A. M. of the following dates, for PANAMA, connecting with Pacific Mail, with one of the Company's splendid steamers from ASPINWALL for NEW YORK.

On the 10th, 18th and 30th of each month that has 30 days.

On the 10th, 18th and 30th of each month that has 31 days.

When the 10th, 18th and 30th fall on Sunday, they will leave on Saturday preceding; when the 18th falls on Sunday, they will leave on Monday following.

Steamer leaving San Francisco on the 10th touches at Manzanillo. All touch at Acapulco.

Departures of 18th or 19th connect with French Transatlantic Co.'s steamer for St. Nazaire, and English steamer for South America.

Departure of 10th is expected to connect with English steamer for Southampton and South America, and Australia, and P. R. R. Co.'s steamer for Central America. Through tickets can be obtained.

The following Steamships will be dispatched on dates as given below:

January 10th—COLDEN CITY.....Capt. W. F. Lapidge, Connecting with HENRY CHAUNCEY, Capt. Gray.

January 18th—SACRAMENTO.....Capt. Wm. H. Parker, Connecting with the RISING STAR, Capt. Conner.

January 30th—CONSTANTIN.....Capt. J. M. Cavarly, Connecting with ARIZONA, Capt. Maury.

Cabin passengers berthed through. Baggage checked through—100 pounds allowed each adult. Medicine and attendance free.

These steamers will positively sail at 11 o'clock. Passengers are requested to have their baggage on board before 10 o'clock.

Through Tickets for Liverpool by the Cunard, Inman and National Steamship Lines, can be obtained at the office of the P. M. S. Co., San Francisco, where may also be obtained orders for passage from Liverpool or Southampton to San Francisco, either via New York or St. Thomas. If desired an amount of \$10 to \$20 will be advanced with the above orders. Holders of orders will be required to identify themselves to the Agents in England.

For Merchandise and Freight for New York and way ports, apply to Messrs. WELLS, FARGO & CO.

The Steamship CHINA, Capt. E. W. Smith, will be dispatched January 13th, at noon, ascending wharf, corner of First and Brannan streets, for YOKOHAMA and HONG-KONG, connecting at Yokohama with the steamer COSTA RICA for SHANGHAI.

For passage and all other information, apply at the Pacific Mail Steamship Co.'s office, corner of Sacramento and Leidesdorff streets.

OLIVER ELDRIDGE, Agent.

New Mining Advertisements.

Chilpancingo Mining Company.—District of Cres,

Senora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1888, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately. In United States gold and silver coin, to the Secretary, 318 California street, San Francisco, California.

Any stock upon which said assessment was levied, and which was not paid on or before the twenty-sixth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOISE, Secretary.

Office, 318 California street, up-stairs, San Francisco. jan25

I. X. L. Gold and Silver Mining Company.—Loca-

tion of Mine: Silver Mountain District, Alpine County,

Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twelfth day of December, 1887, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Richard Inch	34	30	\$9 00
Richard Inch	35	30	45 00
Richard Inch	36	20	30 00
Richard Inch	38	6	9 00
J. H. Williams	303	5	7 50

Names.	No. Certificate.	No. shares.	Amount.
Martin C. Miller	not issued 24	7 1/2	7 1/2
John Richards	49	5	7 50
Lewis Fisher	51	10	15 00
George Lorenz	not issued 245	1 1/2	2 25
Wm Davidson	340	5	7 50
Wm Davidson	340	1 1/2	2 25
Joseph Warner	not issued 256	1 1/2	2 25
Mrs. J. H. Gates	not issued 256	1 1/2	2 25
James Barron	not issued 257	3 1/2	5 10
Mary C. Bridges	313	7 1/2	11 25
Thomas Prisk	bal 133	8 3/4	12 50
George Morhouse	not issued 258	2 1/2	4 15
Georgiana Daly	bal 235	3 3/4	5 25
Wm Bowland	306	5	7 50
Wm Bowland	306	5	7 50
A. B. Sablin	149	5	7 50
W. J. Thomas	160	5	7 50
Joseph H. H. H.	161	5	7 50
Justin Gates	not issued 291	1 1/2	2 25
C. H. Pearce	210	9	13 50
H. G. Blaisdell	bal 232	15 1/2	22 50
H. G. Blaisdell	232	3 1/2	5 10
H. G. Blaisdell	232	9 1/2	14 25
H. G. Blaisdell	232	15 1/2	22 50
Henry Eno	301	3	4 50
Henry Eno	301	7 1/2	11 25
John Cairns	249	70	105 00
Samuel H. Nicholas	257	7 1/2	11 25
Wm Lubbert	341	10	15 00

In accordance with law, and an order of the Board of Trustees, made on the twelfth day of December, 1887, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., auctioneers, 418 Montgomery street, San Francisco, on Thursday, the sixth day of February, 1888, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. CROWNSHIELD, Secretary.

Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. jan25

Oxford Beta Tunnel and Mining Company, Es-

meralda District and County, State of Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the eighth (18th) day of November, 1887, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C. O. Heath	117	10	\$5 00
C. O. Heath	118	10	5 00
C. O. Heath	149	10	5 00
C. O. Heath	152	10	5 00
C. O. Heath	162	6	3 00
C. O. Heath	212	10	5 00
H. P. Stickey	228	10	5 00
H. P. Stickey	247	5	2 50
H. P. Stickey	248	5	2 50
H. P. Stickey	249	5	2 50
A. Hinds	242	60	25 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-sixth day of December, 1887, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Wednesday, the twelfth day of February, 1888, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

CEO. H. PECK, Secretary.

Office, 212 Clay street, San Francisco. jan25

Rippon Gold and Silver Mining Company.—

Location of Works: Silver Mountain Mining District,

Alpine County, State of California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the seventh (18th) day of December, 1887, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Chalmers	1	10	\$5 00
M. C. Owens	2	10	5 00
M. C. Owens	49	15	7 50
C. L. Gilbert	39	45	22 50
C. L. Gilbert	39	45	22

Kearsarge Mining Company, Kearsarge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1888, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 428 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. R. WINGARD, Secretary.
Office, 428 California street, San Francisco. Jan 25

Hittlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1888, an assessment of two dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 315 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 315 California street, San Francisco. Jan 25

Welch Quicksilver, Silver and Copper Mining Company, Mount Diablo Mining District, Contra Costa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of January, 1888, an assessment of three dollars (\$3) per share was levied upon the capital stock of said Company, payable on the tenth day of March, 1888, to the Secretary, George Byles, at his office, Room No. 15 Stevenson House, southwest corner of Montgomery and California streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of April, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEORGE BYLES, Secretary.
Office, Room No. 15 Stevenson House, S. W. corner Montgomery and California streets, San Francisco. Jan 25

Mining Notices—Continued.**Arizona Consolidated Mining Company, Fortuna District, Arizona Territory.**

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of December, 1887, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable in United States gold and silver coin, to the Secretary, at the office of said Company, No. 511 Clay street.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

G. W. BUNNELL, Secretary.
Office, No. 511 Clay street, San Francisco. Jan 25

Cordillera Gold and Silver Mining Company, Chihuahua, Moresnes Mining District, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of January, 1888, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 321 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco. Jan 25

Die Padre Gold and Silver Mining Company, Alamos, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of January, 1888, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, corner Broadway and Battery streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the eleventh day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. C. McCOMB, Secretary.
Office, corner Broadway and Battery streets. Jan 25

Hope Gravel Mining Company—Location of Works and Property: Orass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of December, 1887, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 53 Kearny street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-second day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 53 Kearny street, corner of Sacramento, San Francisco, California. Jan 25

Hancock Copper Mining Company. Location: Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of January, 1888, an assessment of seventy-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 699 Market street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fourteenth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. S. SWEET, Secretary.
Office, 699 Market street, San Francisco. Jan 25

By Mail.—The Mining and Scientific Press will be sent by mail to any part of the civilized world. In case of removal subscribers have only to inform us of the post office address of their old and new location, and the paper will be sent accordingly.

I. X. L. Gold and Silver Mining Company, No. 2, Silver Mountain District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of October, 1887, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Avery, Clark	53	4	4 00
Adams, J. S.	119	6	6 00
Armit, B. W.	134	6	6 00
Ayers, Isaac	109	5	5 00
Brown, Geo. H.	110	8	8 00
Boulton, Wm.	137	5	5 00
Bradley, John	121	5	5 00
Christie, John	125	3	3 00
Davidson, David	118	10	10 00
Egan, E. D.	124	10	10 00
Egan, E. D.	24	4	4 00
Edlin, W. A.	64	6	6 00
Edwards, John	82	10	10 00
Edwards, John	29	5	5 00
Erickson, E. H.	103	7	7 00
Fisher, R. H.	31	25	25 00
Finance, Alex.	101	4	4 00
Griffin, W. B.	104	4	4 00
Griffin, W. B.	66	4	4 00
Griffin, W. B.	107	17	17 00
Gray, John	138	9	9 00
Gray, John	91	8	8 00
Gray, John	105	2	2 00
Griffin, John	105	5	5 00
Hillebrand, Lewis	106	5	5 00
Hill, V. R.	73	15	15 00
Hill, V. R.	130	3	3 00
Hill, V. R.	3	3	3 00
Hill, V. R.	74	15	15 00
Hill, V. R.	75	15	15 00
Hill, V. R.	101	1	1 00
Hill, V. R.	71	1	1 00
Marion, Phelps	69	5	5 00
Harris, Geo. J.	112	5	5 00
Hewes, Joseph	113	5	5 00
Inch, Richard	76	3	3 00
Inch, Richard	77	20	20 00
Inch, Richard	78	20	20 00
Inch, Richard	79	20	20 00
Inch, Richard	80	20	20 00
Inch, Richard	81	10	10 00
Inch, Richard	82	10	10 00
Inch, Richard	83	10	10 00
Inch, Richard	84	10	10 00
Inch, Richard	85	5	5 00
Inch, Richard	86	5	5 00
Inch, Richard	87	5	5 00
Inch, Richard	88	5	5 00
Jones, James	101	7	7 00
Jones, James	102	10	10 00
Johnson, John A.	103	2	2 00
Kelly, Mary	95	2	2 00
Lewis, P. R.	133	10	10 00
Lewis, P. R.	134	8	8 00
Macintosh, W. B.	114	10	10 00
Macintosh, W. B.	115	10	10 00
Macintosh, W. B.	116	10	10 00
Macintosh, W. B.	117	10	10 00
Macintosh, W. B.	118	10	10 00
Macintosh, W. B.	119	10	10 00
Macintosh, W. B.	120	10	10 00
Macintosh, W. B.	121	10	10 00
Macintosh, W. B.	122	10	10 00
Macintosh, W. B.	123	10	10 00
Macintosh, W. B.	124	10	10 00
Macintosh, W. B.	125	10	10 00
Macintosh, W. B.	126	10	10 00
Macintosh, W. B.	127	10	10 00
Macintosh, W. B.	128	10	10 00
Macintosh, W. B.	129	10	10 00
Macintosh, W. B.	130	10	10 00
Macintosh, W. B.	131	10	10 00
Macintosh, W. B.	132	10	10 00
Macintosh, W. B.	133	10	10 00
Macintosh, W. B.	134	10	10 00
Macintosh, W. B.	135	10	10 00
Macintosh, W. B.	136	10	10 00
Macintosh, W. B.	137	10	10 00
Macintosh, W. B.	138	10	10 00
Macintosh, W. B.	139	10	10 00
Macintosh, W. B.	140	10	10 00
Macintosh, W. B.	141	10	10 00
Macintosh, W. B.	142	10	10 00
Macintosh, W. B.	143	10	10 00
Macintosh, W. B.	144	10	10 00
Macintosh, W. B.	145	10	10 00
Macintosh, W. B.	146	10	10 00
Macintosh, W. B.	147	10	10 00
Macintosh, W. B.	148	10	10 00
Macintosh, W. B.	149	10	10 00
Macintosh, W. B.	150	10	10 00
Macintosh, W. B.	151	10	10 00
Macintosh, W. B.	152	10	10 00
Macintosh, W. B.	153	10	10 00
Macintosh, W. B.	154	10	10 00
Macintosh, W. B.	155	10	10 00
Macintosh, W. B.	156	10	10 00
Macintosh, W. B.	157	10	10 00
Macintosh, W. B.	158	10	10 00
Macintosh, W. B.	159	10	10 00
Macintosh, W. B.	160	10	10 00
Macintosh, W. B.	161	10	10 00
Macintosh, W. B.	162	10	10 00
Macintosh, W. B.	163	10	10 00
Macintosh, W. B.	164	10	10 00
Macintosh, W. B.	165	10	10 00
Macintosh, W. B.	166	10	10 00
Macintosh, W. B.	167	10	10 00
Macintosh, W. B.	168	10	10 00
Macintosh, W. B.	169	10	10 00
Macintosh, W. B.	170	10	10 00
Macintosh, W. B.	171	10	10 00
Macintosh, W. B.	172	10	10 00
Macintosh, W. B.	173	10	10 00
Macintosh, W. B.	174	10	10 00
Macintosh, W. B.	175	10	10 00
Macintosh, W. B.	176	10	10 00
Macintosh, W. B.	177	10	10 00
Macintosh, W. B.	178	10	10 00
Macintosh, W. B.	179	10	10 00
Macintosh, W. B.	180	10	10 00
Macintosh, W. B.	181	10	10 00
Macintosh, W. B.	182	10	10 00
Macintosh, W. B.	183	10	10 00
Macintosh, W. B.	184	10	10 00
Macintosh, W. B.	185	10	10 00
Macintosh, W. B.	186	10	10 00
Macintosh, W. B.	187	10	10 00
Macintosh, W. B.	188	10	10 00
Macintosh, W. B.	189	10	10 00
Macintosh, W. B.	190	10	10 00
Macintosh, W. B.	191	10	10 00
Macintosh, W. B.	192	10	10 00
Macintosh, W. B.	193	10	10 00
Macintosh, W. B.	194	10	10 00
Macintosh, W. B.	195	10	10 00
Macintosh, W. B.	196	10	10 00
Macintosh, W. B.	197	10	10 00
Macintosh, W. B.	198	10	10 00
Macintosh, W. B.	199	10	10 00
Macintosh, W. B.	200	10	10 00

JOHN F. LOHSE, Secretary.
Office, 315 California street, San Francisco. Jan 25

Welch Quicksilver, Silver and Copper Mining Company, Mount Diablo Mining District, Contra Costa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of January, 1888, an assessment of three dollars (\$3) per share was levied upon the capital stock of said Company, payable on the tenth day of March, 1888, to the Secretary, George Byles, at his office, Room No. 15 Stevenson House, southwest corner of Montgomery and California streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of March, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of April, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEORGE BYLES, Secretary.
Office, Room No. 15 Stevenson House, S. W. corner Montgomery and California streets, San Francisco. Jan 25

Mining Notices—Continued.**Arizona Consolidated Mining Company, Fortuna District, Arizona Territory.**

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of December, 1887, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable in United States gold and silver coin, to the Secretary, at the office of said Company, No. 511 Clay street.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

G. W. BUNNELL, Secretary.
Office, No. 511 Clay street, San Francisco. Jan 25

Cordillera Gold and Silver Mining Company, Chihuahua, Moresnes Mining District, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of January, 1888, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 321 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco. Jan 25

Die Padre Gold and Silver Mining Company, Alamos, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of January, 1888, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, corner Broadway and Battery streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the eleventh day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. C. McCOMB, Secretary.
Office, corner Broadway and Battery streets. Jan 25

Hope Gravel Mining Company—Location of Works and Property: Orass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of December, 1887, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 53 Kearny street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-second day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 53 Kearny street, corner of Sacramento, San Francisco, California. Jan 25

Hancock Copper Mining Company. Location: Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of January, 1888, an assessment of seventy-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 699 Market street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fourteenth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. S. SWEET, Secretary.
Office, 699 Market street, San Francisco. Jan 25

By Mail.—The Mining and Scientific Press will be sent by mail to any part of the civilized world. In case of removal subscribers have only to inform us of the post office address of their old and new location, and the paper will be sent accordingly.

La Hlanan Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the second day of January, 1888, an assessment of two dollars and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 314 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the first day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

WM. SIEVERS, Secretary.
Office, No. 314 Front street, San Francisco. Jan 25

Mount Tenabo Silver Mining Company—Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1888, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 428 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twelfth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 428 Montgomery street, San Francisco. Jan 25

U. S. Grant Mining Company—Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1888, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 428 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twelfth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 428 Montgomery street, San Francisco. Jan 25

Mining Notices—Continued.**Arizona Consolidated Mining Company, Fortuna District, Arizona Territory.**

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of December, 1887, an assessment of fifty cents per share was levied upon the capital stock of said Company, payable in United States gold and silver coin, to the Secretary, at the office of said Company, No. 511 Clay street.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of January, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

G. W. BUNNELL,

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the **PACIFIC FOUNDRY,** 1st San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

Pacific Iron Works, 915 1st

San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

— BY —

WM. P. BLAKE,

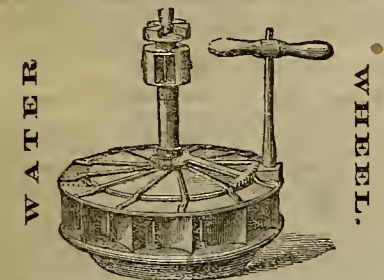
Corner First and Mission streets, or Box 2,077 3rd St. SAN FRANCISCO.

DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND PLACER MINERS, is called to this new invention for saving fine gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address Dr. J. B. BEERS, San Francisco, Per Wells, Fargo & Co's Express.

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALLED AND UNRIVALED IN THE United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc., etc.

CALIFORNIA REPRESENTS:—E. Stockton, Folsom; O. Simmons, Oakland; (Mill at Clear Lake); Morgan Coville, Lexington; Santa Clara County; J. Y. McMillan, Lexington; Santa Clara County. Send for Circular to

KNAPP & GRANT,

Agents for California.

26v13-lyq 310 Washington street, San Francisco

NOTICE TO MERCHANTS
— AND —
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz. Greater strength; less danger in working; as goods require no slinging or lashing, consequently make fewer breakages; requires one man less to operate; it stops with the load at any point, without any fasten ing or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,

By Joseph Moore, President.

21v15 tr

HUNGERFORD'S

Improved Concentrators.

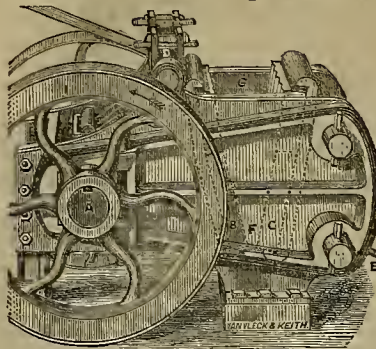
MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miers' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 tr

MORGAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENTED IMPROVED QUARTZ CRUSHER.

The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages the advertisement is enabled to offer these machines to the public at the following low terms:

No. 1—10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, **\$600**
No. 2—15-inch Crusher, capable of similarly putting through five to six tons per hour—**\$850**
No. 3—20-inch Crusher, will in a similar manner crush from seven to eight tons per hour—**\$1,200**

EXPLANATION OF THE ABOVE ENGRAVING.

The frame is made of cast iron, bound with heavy wrought iron bands making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County: "RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866. JAMES BRODIE, Esq., San Francisco—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly, R. P. JOHNSON, Supt. Rawhide Ranch Quartz Mill."

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1866. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desirous of emporing, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of May 22, 1866. JAMES BRODIE, Fulton Foundry, or CHARLES RADCLIFF, Express Building, 402 Montgomery street, San Francisco.

12v13 tr

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and they will be held responsible in law and in damages.

Every infringing machine is made and offered for in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

11v14 tr

Agents for the Pacific Coast.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools, 319 and 321 Pine Street,

Between Montgomery and Sansone, San Francisco 10v14 tr

PATTINSON'S
HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

7v15-4y

THOMAS PATTINSON

THE CELEBRATED
Self Generating Portable
Gas Lamp.

This extraordinary Lamp produces its own gas by the vaporization of Petroleum, Naphtha, or Benzine. It emits neither smoke nor smell, and burns with a pure white flame, equal in intensity to an ordinary gas burner, and at an expense of from one to three cents per hour only, according to the quantity of light required. It is peculiarly adapted for mining purposes, also for stores, factories, billiard rooms, and in fact, for all purposes where regular gas is not available, and for which it is an admirable substitute. As all outside light it stands unrivalled, burning with undiminished brilliancy in a strong wind.

Directions for Use.

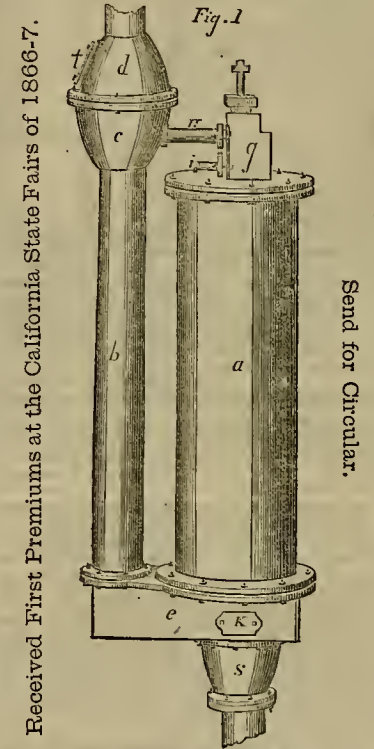
Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn off the tap and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained till the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vise and the burner screwed off. The burnt cotton must then be withdrawn, and a fresh piece of stout cotton rag, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

Manufactured solely by JOHN J. HUCKS, original proprietor, Factory, North Beach, San Francisco; and for sale by his agents in every city and town throughout the State.

18v14-3m

WILCOX'S
Patent Steam Water Lifter.

Received First Premiums at the California State Fairs of 1866-7.

Send for Circular.

A Steam Pump without Engine, Piston, Plunger or Back-suction, using both the expansive and elastic power of steam, and doing more work with the same amount of fuel, than any other Pump driven by steam power. It is applicable to either light or heavy work, whether for mining, irrigation or other purposes. It has been used of various capacities, from 50 to 30,000 gallons per hour, and can be made of any size required. It is not injured by sandy or muddy water. In light or lift it is limited only by the strength of the boiler used.

For further information, apply to M. & A. WILCOX, Proprietors, No. 19 Front Street, between 1 and J Sts., Sacramento, Cal. 25v15 2m3m

A FULL ASSORTMENT OF

Molders' Tools,

Constantly on hand and for sale at low prices, by CHAS. OTTO & CO., Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 22v15 3m

A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by CHAS OTTO & CO., 312 Bush street. 22v15 3m

A FULL ASSORTMENT OF

TWIST DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

Steam Gauges, a general assortment of

Hardware, Cutlery, and

MECHANICS' TOOLS,

By CHAS. OTTO & CO., 312 Bush street, San Francisco. 22v15-3m

Mechanical Drawings.

Persons wishing Mechanical Drawings can obtain the services of competent draughtsmen, by applying to this office.

The Manufacture of Furniture.

The manufacture of furniture in this city is fast assuming an importance among the leading industries of the State. Commencing some ten or twelve years since with the labor of three or four men, the business has grown to such an extent that it now employs nearly four hundred men, who last year turned out new furniture to the value of nearly or quite \$1,000,000; while a large amount of additional labor and capital is employed in setting up and completing furniture that is partially manufactured at the East. The total aggregate paid for material and labor in the entire furniture business of the city during the past year cannot amount to less than \$1,800,000. Our native woods are also coming largely into use, particularly the California laurel.

The report of the Scientific Commission which visited Alaska the past summer, will doubtless lead to the introduction into the business of some of the more valuable woods from that quarter. Considering the high price of labor on this coast, and the absence of any great variety of native woods suitable for such manufacture, the rapid increase in this branch of industry may be considered very remarkable.

The immense importations which are annually made to meet the demands for furniture in this State, shows plainly that there is here a large field for the employment of labor and capital. We have already some six or seven furniture manufactories which will compare favorably, in magnitude, with many of the leading manufactories at the East. Among these, we would at this time notice particularly

MR. W. G. WEIR'S ESTABLISHMENT.

The factory of Mr. Weir is located on Hayes street, near Ninth. Forty hands are constantly employed—all skilled workmen, as most of the furniture turned out at this establishment is of a superior workmanship for its class, and quite superior to the same class of work imported from the Atlantic States. Mr. Weir commenced business as a pioneer some ten years since, in a limited way, and has gradually pushed his course upwards, until he now competes, successfully, with the best houses in his line of business. The factory has a frontage of fifty-six feet, and a depth of one hundred and twenty. The first floor is mainly occupied by various descriptions of machinery, that are kept in operation by steam. The front rooms are used for finishing and delivering the goods manufactured.

The machinery, located on the ground floor, is in perfect working order, and includes all the machinery and appliances requisite for a first-class establishment. Nearly all the work of the factory is done by machinery; the several parts of tables, bedsteads, bureaus, etc., are cut and formed in this manner. The principal materials used are redwood, Oregon pine, sugar pine, Spanish cedar and white cedar; for veneering purposes, walnut, mahogany, maple, and rosewood. The factory is at present turning out a style of painted chamber sets that are held in good demand, and compare favorably with imported goods in point of neatness and durability, and at very low prices. The total amount of wood cut every day and used for manufacturing purposes is fifteen hundred feet.

The second floor of the establishment is occupied by workmen engaged in veneering, painting and finishing. Some very superior specimens of workmanship in the way of extension, dining and center tables, the latter with finely-polished marble covers, are to be seen, some of which are, in part, beautifully carved, and would elicit admiration in the best workshops of Europe or America. The only articles of furniture not manufactured at Mr. Weir's establishment are chairs and sofas. His French style of bedsteads and looking-glass frames are durable and elegant. A large number of cases for printers' use have just been completed at this establishment. This, we believe, is a new branch of furniture business in this city.

The increase of the business of manufacturing furniture has made it necessary on the part of Mr. Weir to enlarge his establishment. He is now erecting a new wing, twenty by sixty feet, where he intends placing a large amount of new machinery, and giving necessary facilities for expanding

his operations. The amount of goods now produced at the factory is about \$80,000 annually, and it is estimated that the quantity during the ensuing year will reach double that sum.

Were it not for the internal revenue tax, which bears harder upon manufacturers in this State than at the East, this establishment would more than double its present capacity, and would give employment to over one hundred men.

LONG TELEGRAPHIC CIRCUIT.—If we are not mistaken, the following is the record of the longest overland telegraphic circuit ever made. The Chicago Tribune of Dec. 16th, says: An unbroken circuit was made, and messages sent without repeating, between Houston, Texas, and Salt Lake City, via New York. The Houston operator sent: "Houston sends greeting to Salt Lake. We sit with coats off and windows open." Salt Lake promptly replied: "Weather beautiful here, but have a snow storm in Montana. Brigham Young has just martyred another heifer." Houston replied: "Don't touch the brass in your key, or you'll get yellow fever." After this, Helena, Montana, 550 miles north of Salt Lake, was "put on" and conversed a few moments. The circuit worked over the following route: Houston, New Orleans, Mobile, Knoxville, Washington, New York, Chicago and Salt Lake. Had the San Francisco operator not been out of the office, he would have been drawn into the circuit, and the length extended 1,000 miles more. This is a rather remarkable performance, since Houston is 1,800 miles from New York, which is also 2,436 miles from Salt Lake City. The weather was very favorable and the wires in good condition.

SINGULAR OCCURRENCE.—The Barnstable Patriot relates a singular occurrence at the Highland Lighthouse on the evening of November 22d. Soon after nine o'clock the keeper was startled by a deafening crash, as of a loaded gun fired on a mass of glass. For a moment it seemed as if the tower itself must have hurst asunder. On further examination, it was discovered that a pane of glass, thirty-six inches by twenty-four, and a half an inch thick, had been shattered into a thousand pieces, though not broken entirely through, as by a heavy blow on the outside. On going to the ground, the mystery was explained by finding three large black ducks lying dead under the broken pane—one of them with its neck broken in several places, its breast split open the entire length, and the bones crushed to atoms. Such was the destructive force with which the bird has been propelled against the window, in its flight across the bay in the night.

SWORD BLADES.—The renowned manufactory of Toledo, which gave their celebrity to Spanish blades, is said to have been established as far back as the ninth century by the Moors, to whom, in fact, Spanish civilization, if such it may be called, owes its origin. In later times, the *Fabrica de las Armas* was suddenly closed, upon which the artists dispersed themselves and set up factories in different parts of Spain and Portugal, at Lishou, Orgaz, Seville, Zamagosa, Bilbao, and other places. In our old literature we meet with frequent allusions to Spanish swords, as in Romeo and Juliet, Othello, and the Merry Wives of Windsor. In the mountains of Arragon, near Calatayud, and in those of Guipuzcoa, near Mondragon, is found the best iron in Spain, perhaps in Europe. Over these mines flow several streams of icy coldness, a fact which suggested to the native miners the idea that the iron itself was frozen, and hence weapons made of this metal were said to be of the ice-brook's temper.

ALASKA.—It is claimed by parties more or less acquainted with the capacities and resources of the newly acquired Territory of Alaska, that the resources and capacity of that country are very considerable; that the fur trade, the fisheries, and the universal wealth of that region are of sufficient extent to supply remunerative employments to a very large population. It is also asserted that there are now in the Territory about 700 Americans, and nearly, or quite, 7,000 Russians and half-breeds, who will remain in the country.

PHYSIOLOGISTS assert that, if all immigration into Paris should cease, so that no fresh blood could come from the country, the population of the city would dwindle in numbers, deteriorate in force, and become so nearly *effete* in five generations as to be incapable of reproduction.

The labor crisis is reported to be fearful in some parts of England and France, and probably never before in the history of this country were there so many able-bodied men out of employment.

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20, 10 cents.
Over \$20 and not exceeding \$50, 25 cents.
No fractions of cents to be introduced in an Order, United States Treasury Notes, or National Bank Notes only received or paid.

To send over \$50, additional Orders must be obtained. Post offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out: No. Amount Date, 186

MONEY ORDER.

Required for the sum of \$.... Payable at, State of, Payable to, Residing at, State of, Entered in Register:, Postmaster.

Names of parties and places, and the sums, to be written in the plainest possible manner. As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.			
Office.	County.	Office.	County.
Albany	Alameda	San Francisco	San Francisco
Berkeley	Alameda	San Jose	San Jose
Campanville	Yuba	Stockton	San Joaquin
Chico	Butte	Tracy	San Joaquin
Columbia	Butte	Yuba City	Sacramento
Colusa	Colusa	Forest Hill	Colusa
Downsville	Sierra	Georgetown	El Dorado
Dutch Flat	Placer	Gibsonville	Sierra
Elkridge	Humboldt	Gilroy	San Clara
Folsom	Sacramento	Grass Valley	Nevada
Forest Hill	Placer	Headshurg	Sierra
Georgetown	El Dorado	Isaac Valley	Sierra
Gibsonville	Sierra	Jackson	Amador
Gilroy	San Clara	La Porte	Plumas
Grass Valley	Nevada	Los Angeles	Los Angeles
Headshurg	Sierra	Mariposa	Mariposa
Isaac Valley	Sierra	Markleville	Alpine
Jackson	Amador	Marysville	Yuba
La Porte	Plumas	Martinez	Contra Costa
Los Angeles	Los Angeles	Mokelumne Hill	Calaveras
Mariposa	Mariposa	Monterey	Monterey

NEVADA.			
Office.	County.	Office.	County.
Virginia City	Storey	Austin	Lincoln
Carson	Ormsby	Aurora	Esmeralda

OREGON.			
Office.	County.	Office.	County.
Albany	Lincoln	La Grande	Union
Canyon City	Grant	Oregon City	Clatsop
Corvallis	Benton	Portland	Multnomah
Dallas	Polk	Roseburg	Douglas
Engene City	Linn	Salem	Marion
Jacksonville	Jackson	The Dalles	Wasco
Lafayette	Yam Hill	Umatilla	Umatilla

IDAHO TERRITORY.			
Office.	County.	Office.	County.
Boise City	Ada	Ruby City	Owyhee
Idaho City	Boise	Lewiston	Ney Perce

MONTANA TERRITORY.			
Office.	County.	Office.	County.
Helena	Edgerton	Virginia City	Madison

WASHINGTON TERRITORY.			
Office.	County.	Office.	County.
Olympia	Thurston	Vancouver	Clark
Steilacoom City	Pierce	Walla-Walla	Walla-Walla

SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;

With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

By WM. BARSTOW, M. D.

Published by A. Roman & Co., San Francisco.
For sale at this Office.—Price, One Dollar.

With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 21v15f

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**Aqua Ammonia,
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Acids Chemically Pure,
Nitrate of Silver,
Cyanide of Potassium,
AND CHEMICALS OF ALL KINDS.**
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Montgomery street, San Francisco. 21v15f

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

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8v13-1y Slovo Store, No. 125 Clay street, below Davis.

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.

PARTIES WISHING TO PURCHASE WILL SAVE 50 PER CENT. by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco. 21v15-3m

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A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

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BOTH OF MATERIAL AND FINISH.

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Patent India Rubber Paint and Cement

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New Cloth Roofs put on, saturated with liquid rubber, then painted at nine cents per square foot. We use none but the best materials and pure linseed oil. No lead turpentine; neither asphaltum or coal tar.

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Gold and Silver Ores and their Sulphures, worked in any quantity, from a few pounds to any number of tons, if desired, by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.

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ASSAY AND BULLION BALANCES,

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THE PHILOSOPHY OF MARRIAGE, BEING FOUR IMPORTANT LECTURES ON FUNCTIONS AND DISORDERS OF THE Nervous System and Reproductive Organs, to be had by addressing and enclosing twenty-five cents, postage stamps, to Secor, Swan & Co., 68 Broadway, New York. 21v13-1y

Manzanita Pipes!

WHOLESALE AND RETAIL.—SALESROOM, No. 55 Third street, near Mission. Factory, No. 10 Stevenson street, near First San Francisco. These Pipes are manufactured from the best Mountain Manzanita, as sweet as Meerschaum. 21v15-3m

JACKSON & SPAULDING.

NEW LOCOMOTIVES FOR THE C. P. R. R.
The Central Pacific Railroad Company have lately set up at their shops in Sacramento, six new locomotives, of the most approved construction. These engines are named as follows: Idaho, Sampson, Goliath, Ajax, Achilles and Antelope. The Idaho is designed for freight service, and is regarded as a particularly fine specimen of workmanship. It weighs, with its tender, 57 tons, has 4-foot drivers, and is provided with Hooker's patent pump. Wm. H. Mills takes charge as engineer. The company have ten other locomotives in their shops at Sacramento, all ready to be set up. These engines are built at the East, then taken to pieces and forwarded to this coast, to be set up again for use. It is to be hoped that circumstances will soon enable the company to manufacture both their locomotives and cars in their own shops, or to give them out to bidders on this coast.

SCHOOL REPORT.—We have received a copy of the annual report of Mr. John C. Pelton, Superintendent of Public Schools of this city, for the school year ending October 15th, 1887. The report comprises a volume of 240 pages, a portion of which, however, has already appeared in the recently published volume of municipal reports as the Superintendent's report to the Board of Supervisors. The balance of the report before us is addressed to the Board of Education, and contains many valuable suggestions to teachers, school directors, parents and others—among which we notice the appointment of teachers, vacations and holidays, text-books, school discipline, school attendance, modes of studying the various branches, overworking of pupils, etc. Quite a number of pages are devoted to a detail of the questions put to the pupils of the higher schools in examination for graduation, May, 1886; also the questions put to applicants for the position of teacher. We shall endeavor to allude to some of the prominent features in the report at a future day.

A TERRIBLE ACCIDENT occurred at the Brown Brothers' mill at You Bet, a few days since. Mr. Geo. Brown, one of the proprietors, and superintendent, while oiling some part of the machinery near the shaft of the water wheel (a hurdy gurdy), accidentally slipped and fell against the shaft in such a manner that his clothes were caught by it, and his body whirled around at the rate of about 150 revolutions a minute. It was two or three minutes before the accident was noticed, and of course, the unfortunate man was quite dead—his feet and legs were beaten off up to his knees, and nearly every bone in his body broken.

The Pioneers have purchased the vacant lot on Sutter street, in the rear of the Masonic Temple, on which they propose to erect a building which shall hereafter be their permanent home. The location is a most excellent one.

EXTENSIVE ALMOND CULTURE.—C. W. Reed, of Yolo County, intends to cover one hundred acres of land in that county, the coming summer, with soft-shell almond trees.



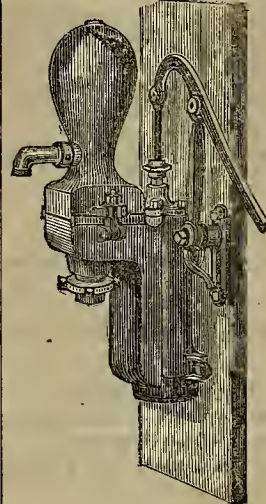
CONTINENTAL Life Insurance Company,
302 Montgomery street, corner of Pine.

HANSBROW'S CHALLENGE Deep-Well, Mining and Double-Cylinder Patent Pumps.

These Pumps combine all the advantages of the common Lift and the Double-Acting Suction and Force Pumps, and are equally fitted for all—Household, Farm, Mill, Manufactory, Brewery, Ship, Railway, Mining, and other purposes, and are especially recommended on account of their lightness, compactness, durability, cheapness, and the facility with which they can be placed in any position.

They are adapted for Hand, Steam, Horse, Water, or Wind Power. They are more durable in all their parts than any other Pumps of the same power.

Four-Inch Deep-Well Pump.



The Valves are of the simplest construction, and can be readily taken out by loosening two common nuts. They are not liable to get out of order, and can at all times be removed without the aid of a skillful mechanic.

The lower valves of these Pumps work upon inclined seats, which prevents sand or other matter that the Pumps may take up, from remaining under the valves, or stopping the flow of water.

These Pumps are worked with less friction, and consequently require less power than any other Double-Acting Pumps of equal capacity.

All sizes, from 2-inch to 8-inch Cylinder, manufactured by the Pacific Iron Works, GODDARD & CO., and for sale by the Agents,
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ESTABLISHED..... MAY, 1880

Mining and Scientific Press



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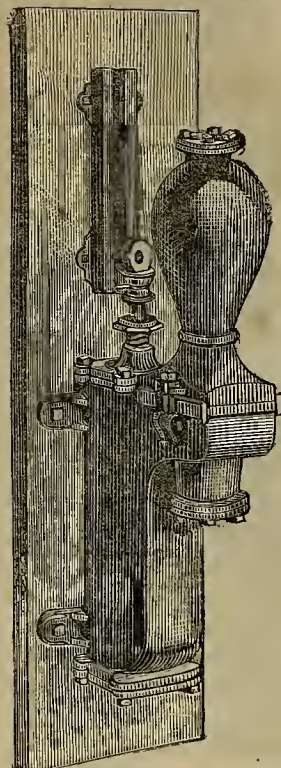
Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thank for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness:

Messrs. DEWEY & Co.—Sirs: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Washing Ores." It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf. Very truly yours,
M. A. WOODSIDE.

Favorable to Inventors.—Persons holding new inventions of machinery and important improvements, can have the same illustrated and explained in the Mining and Scientific Press, free of charge, if in our judgment the discovery is one of real merit, and of sufficient interest to our readers to warrant publication.

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SCHOOL OF MINES.

Corner Geary and Stockton streets.

ON THE SIXTH DAY OF JANUARY, 1888,

A course of Lectures on

Chemistry, Metallurgy, Mining and Geology,

Will be commenced, and continue for four months from date. The special objects of these Lectures will be to afford those practically engaged in Metallurgical and Mining pursuits, full and complete information on all points bearing on the useful minerals of this coast, together with practice in the Chemical and Metallurgical Laboratories.

Price for the full Course of Lectures and Practice in the Laboratory, \$120.

Terms for Lectures alone, \$10 for each subject

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25v15-1m

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SIXTH INDUSTRIAL EXHIBITION

UNDER THE AUSPICES OF THE

MECHANICS' INSTITUTE,

SAN FRANCISCO.

The undersigned, acting under authority from the Mechanics' Institute of the City of San Francisco, take great pleasure in announcing to the public that they have resolved upon holding an Industrial Exhibition in the month of August, 1888, on a much larger scale than was ever before attempted on this coast; and they make this early announcement of their intention, that all who may desire to participate shall have ample time for preparation.

A programme, embracing rules and regulations for the government of participants, with a list of Premiums to be awarded, etc., is receiving such earnest and careful attention as the importance of the enterprise demands and in due season the same will be made public by circular letters widely distributed, and by advertisements in the leading journals of this coast.

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SAN FRANCISCO, SATURDAY, FEBRUARY 1, 1868.

{ VOLUME XVI.
Number 6.

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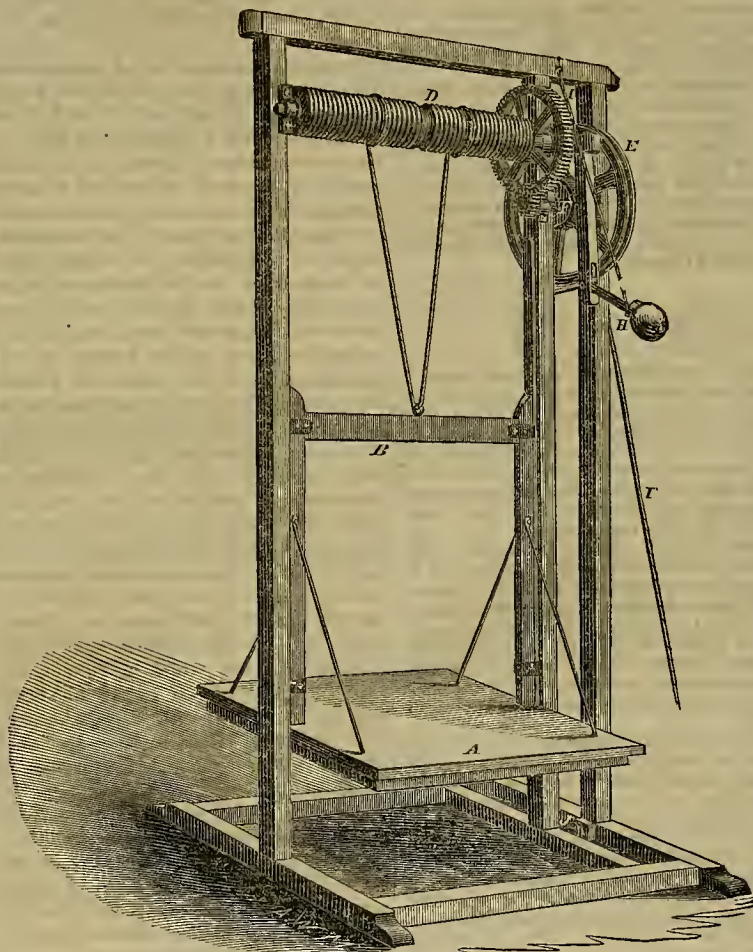
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Carvalho's Steam Superheater.
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The Freiberg Barrel Process for the Reduction of Gold and Silver Ores.—No. 10.
The Paris Exhibition—English Opinions.
The Mining Academies of Saxony and Hungary.
A Curious Machine.
A Paper Mill in the Sierras.
Steam Power in Hydraulic Mining.
A Canal on Fire.
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Saw Made of Bone.
A Peculiar Coal.
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John B. Gough.
The Mechanics' Mills.
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Moore's Patent Friction Hoist.

We give herewith an illustration of a late California invention, which is now being quite generally introduced into the warehouses of this city, where much hoisting is required. It is the invention of Mr. Joseph Moore, President of the Vulcan Iron Works Company, of this city. The device is extremely simple, and possesses many advantages.

rope or chain which coils around the axle, *D*; *E*, is the wheel around which the rope passes, by which the load is elevated, and it is connected with the axle, *D*, by suitable gearing. The drum, *F*, contains the mechanism for stopping the load at any point, and is so arranged that the outer case is held by compressing levers operated by the weighted arm, *H*, so that the wheel, *E*, can be turned in one direction to raise the load,



MOORE'S PATENT FRICTION HOIST.

ages over the common hoist, among which may be enumerated greater strength, less danger in working, and as goods require no slinging or landing, breakages and accidents are almost impossible. By the use of a platform, no more trouble or difficulty is encountered in transporting goods from one part to another on the same floor. This hoist requires but one man to operate it, as it may be readily and safely stopped at any desirable point to allow of the single operator to go from one story to another in the transfer of his goods. In stopping it, with its load, either ascending or descending, no fastening or any attention whatever is required from the operator.

In the engraving, *A*, represents the platform upon which the load is to be placed. This platform moves between upright guides and has attached to the bar, *B*, the hoisting

but is prevented from moving the opposite way. To lower the load, the arm, *H*, is raised by the cord, *I*, which extends to the lower floor, thus allowing the case, *F*, to slip between the levers.

BRIDGE ACROSS THE BAY.—Notice has been given of a bill to grant the right for the construction of a bridge across San Francisco Bay, from the most convenient point on the Alameda shore from which to reach Hunter's Point. The proposed bridge is to contain a double carriage way, and a railroad and foot way. It is generally thought to be a project of the Central Pacific Railroad Company, to provide for that road a direct access to San Francisco. There can be little doubt but that the overland railroad will eventually be brought into immediate communication with the P. M. S. Co's wharf.

THE COMING INSTITUTE FAIR.—A correspondent writes us, in relation to the approaching exhibition of the Mechanics' Institute, that in the exhibitions heretofore held, injustice has been done to labor, inasmuch as capital has often been rewarded by medals, etc., when the honor was justly due to the journeyman who performed the work—instanting in particular, the exhibitions of tailors, hatters, bootmakers and others, in which the party received the awards did nothing more than to furnish the capital involved in the manufacture.

We cannot see any ground for complaint on the part of our correspondent, for the reason that the classes of persons of whom he speaks, have as full a privilege as their employers, to exhibit the production of their own industry. Notice has already been given for all such persons to bring in the products of their industry to the coming exhibition, where they will have every attention and advantage for exhibiting, which is accorded to their employers. Employers, of course, cannot be ruled out, and the employed never have been. If our correspondent and his friends will begin now, in season, they will have ample opportunity to put themselves in their proper position before the public at the coming Fair; and we will venture to assure them that when two exhibitions of equal merit are competing for the same prize—the one exhibited by an employer, as the workmanship of another, and the other exhibited by the fabricator himself, the latter will always have the preference in the minds of all honest minded committees of award. Such, we are quite sure, would be the feelings of the management of the Institute.

ASTRONOMICAL.—It is seldom that a more beautiful astronomical display is witnessed than was exhibited on Tuesday evening last. The storm-clouds which have obscured the sky almost continually for the past two months, had passed away, and the air was remarkably clear. Thousands of people were in the streets gazing at the display formed by the peculiar conjunction of the Moon, Jupiter and Venus. The crescent of a new moon had just appeared, and below it, at equal distances, of about 5°, and in line, appeared successively Jupiter and Venus, shining in all the brightness due to the purity of a clear California atmosphere. It is not often that this peculiar conjunction occurs. It has also been interesting to watch the gradual changes of these heavenly bodies on subsequent nights—the Moon rapidly receding and increasing in apparent size, while Jupiter, with hasty movement, gained rapidly upon his more brilliant companion, until on Thursday he appeared in a line horizontally with Venus, both planets disappearing below the horizon at the same time.

REMOVAL.—By reference to their card, which will be found in another column, it will be seen that Messrs. Falkenau & Hanks, of the Pacific Chemical Works, have removed their city office to 619 Montgomery street.

CARVALHO'S STEAM SUPERHEATERS.—We noticed, a few days since at the Aetna Works (Hanscom & Co.) four of Carvalho's Steam Superheaters, which were illustrated and described in this paper a few weeks since. One pair of these superheaters was intended for the boiler making steam for a 75-horse power engine of a gold quartz mill, in the interior; the other pair was for the boiler of a 25-horse power hoisting engine, also in the interior. The Superintendent of an industrial establishment in this vicinity, who has recently placed this superheating attachment to his boilers, is loud spoken in their praise, and says he does with 40 to 45 lbs. of steam, and throttle valve partly open, what formerly required 65 to 70 lbs. of steam, and throttle valve wide open; that he is also using very much less water and fuel, and gets up steam in much less time. This is an invention that has been in use at the East for a long time. It is durable and safe, and must certainly prove of great benefit to the Pacific Coast.

AMERICAN MINERALS AT THE PARIS EXPOSITION.—A correspondent of the *Laboratory*, a scientific journal published in London, after giving a full description of the mineral display in the United States section says: "In fact we have remarkable specimens of every description of economical mineral known in the world, all shown with perfect intelligence, all neatly arranged, clearly labeled with their proper description, so that the visitor has simply to use his eyes in order to know what he is looking at. In most cases the composition of the mineral, or at any rate, its economic value, is attached to it. It is impossible to praise too highly the talent and energy of those gentlemen who have had the arrangement of this magnificent display of minerals. Foremost amongst them are Dr. Pigné, and Messrs. Angel, Blake and Whitney."

SUFFERING IN FRANCE.—The mails bring tidings of terrible sufferings in all parts of France, in consequence of the stagnation in the various kinds of manufacturing enterprises. Hunger and destitution are making sad havoc among the operatives in the chief manufacturing districts, as well as in Paris itself.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER TEN.

The re-introduction of several matters into this series, accompanied by some very lengthy observations, much beyond what was anticipated, has drawn this subject to an unexpected length, and has given to the whole a very desultory aspect, notwithstanding the lengthy interpolations alluded to are entirely pertinent to and intimately associated with the subject treated. The causes just named will, however, induce the writer to curtail his concluding observations; and he will do so with the less regret, as he has endeavored to lay before those readers who may have deemed his lucubrations worthy of perusal, as succinct and correct a statement as it was possible for him to procure of the results which were obtained by practical operations—only incidentally introducing those of a theoretical or experimental character. In this way, those interested in the subject will be able to form their own conclusions as to the feasibility or economy of employing any one or more of the methods noticed in connection with their own particular ores and surroundings. To reduce to a common standard, such as would readily be understood by ordinary readers, all the calculations of quantities, qualities and values of ores, which again become complexed by endeavoring to compare those only containing silver, such as those reduced at Freiberg, with those obtained at Washoe, which contain gold also, present such a series of network entanglements that, to explain thoroughly and minutely all the phases which the problem may assume, would require a moderately sized volume. Some of the more prominent variations, however, it is necessary to notice, foremost amongst which stands the subjects allied to

DRESSING AND CONCENTRATION.

It is the practice in this State to compare almost all matters relating to the reduction of gold and silver ores with what is adopted at Freiberg, as if the matter was not quite as well understood elsewhere. Mr. Kustel has done an acceptable piece of service by the publication, recently, of a work which largely treats upon the two subjects which form the above sub-heading, the necessity for which was shown by the writer eight or nine years ago; and until something better than the toy-like machine which have, up to the present time, been employed for the purpose on this coast, any serious step towards improvement and economy cannot be expected. On no subject connected with the mining and metallurgy of ores containing the precious metals, lead, copper and tin, alone or combined, has European improvements made such marked advances since the writer left that continent (thirteen years ago) as with the two subjects now under consideration, the chief of which does not date back so far as even years ago. These European improvements, with some modifications and adaptations, according to the variety of ore intended to be dressed, could be advantageously adopted in dressing both gold and silver-producing rock. In fact, one of the principal ones alluded to might have been claimed as a California, instead of a European invention, had skill, in place of ignorant inaptitude, been sought to supervise mines. Cases have arisen where some of the earlier improvements—such as the German adaptation of the Cardigan huddle (the origin of all this species of ore-dressers, and from which I obtained my early lessons)—after being perfected,

has been discarded, because the superintendent did not know how to use it. This specialty, and a most important one it is, has engaged far more of my thoughts and attention since my arrival in California, and has made more steps in advance since that period than all which relates to the chemico or metallurgical reduction of gold and silver ores. In the former branch, much opportunity remained for improvement, and there is still room for further modifications. In the latter, no new principle has been enunciated. All that now remains to be done is the judicious application of what has been long known and demonstrated—adapting the means according to the necessity of each case and the varying character of the ore to be treated.

CHARGES AND LOSSES ATTENDANT ON VARIOUS PROCESSES.

The causes referred to in the immediately preceding section furnished also the opportunity of collecting some straggling statements as to the cost and losses attendant on several of the modes under discussion. On the whole, however, they can generally only be deemed approximative and incomplete, so far as possessing any close comparison with what could or might have been attempted with gold and silver ores in the North America Sierra. It may also be observed that many of the statements given were based upon the earlier trials both of Augustin and Ziervogel, since which time some little economies have been made, the whole, however, not of any serious moment. Scarcely any of the data quoted can be considered other than approximative, and some, when compared with others, are very discrepant; some of which discrepancies will be pointed out.

Lamborne, who appears to have studied the extraction of silver in England, Saxony and other German States and the Austrian dominions, more systematically than any other person, gives the succeeding table of the cost and losses attendant on the treatment of one hundred weight of copper or copper matte by the following processes, in order to obtain the half pound of silver contained therein, viz:

	Cost.	Am't per cent. of silver left in matte.
By lixiviation.....	\$7 50	1.10
By amalgamation.....	3 75	1.17
By salt water.....	1 17	1.17
By warm water.....	1 37	1.34

Some unexplained error must occur in the above; otherwise the cost of the extraction of a ton, oven by Ziervogel's method, would amount to \$37.40, and about \$7.50 of silver be left in the residuary matter, or about \$45 per ton, when the two are combined, and this with a matte estimated to contain only about \$400 per ton. Lamborne further remarks that Ziervogel's method is only adapted to few localities. He says, and truly so, that "it can only be carried out with success where the ores are of a pure and unvarying character, as is the case with the mattes formed from the cupriforous schists at Mansfield. Very skillful and intelligent workmen are required, since the preliminary roasting is one of the most delicate operations in the metallurgy of silver."

It may be here remarked that in some parts of the Hartz, where arsenic, antimony, copper and silver are intimately associated with a quartzose gangue, the latter having been previously slagged off, the mode by lixiviation has been found more effective and economical than any other method yet devised. It may also be observed that the losses set forth are relatively too high, both for Augustin's and the barrel mode, each of which rarely amount to more than \$10 per ton, which, however, when added to the loss sustained in chlorinating, would form an aggregate loss of \$18 per ton. In another publication, Lamborne observes that when the lixiviated residues in the last named process are found to assay to the extent of 1-33 per cent. of silver, such residues are again sent to the furnace. He also states that when Ziervogel's method was tried at Freiberg, with furnace products containing arsenic and antimony, it was found that even when the utmost care was employed that 0.15 per cent. of silver (45 ounces per ton) remained in the tubs after the lixiviation was concluded. On the other hand, Augustin's method is much more successful when arsenic and antimony are present. The loss in such cases is greatly diminished as compared with the treatment by Ziervogel's method. Even, however, when the method employed is that adapted for each special variety, the minimum losses and charges cannot be assumed as amounting, for both causes, to less than \$15 per ton by Ziervogel's and Augustin's methods; and I believe that, with care, the barrel method will not amount to much more.

Salt Spring Valley and the Adjacent Region in Calaveras County.

[Read before the California Academy of Natural Sciences, December 16, 1867, by W. A. GODEFROY, Ph. B., Civil and Mining Engineer.]

[Continued from Page 50.]

The lithological character of the Gopher Hills is entirely different from that of Salt Spring Valley. They consist mainly of a pretty hard and tough, more or less coarsely crystalline, and dark-colored hornblende or pyroxenic rock, which is evidently metamorphic, probably of a grit or sandstone. Epidote is not uncommon in this rock, and calcite is occasionally found, though rare. Through most of this region the original stratification has been largely obscured, or nearly obliterated. Its general course, however, can still be traced without difficulty in the more or less elongated and flattened form and the general trend, which the rocky outcrops frequently assume when viewed from a little distance.

The texture of the rock varies considerably. In general it is rather coarsely crystalline; but not unfrequently it is much finer, or even compact; sometimes it is jointed. At one locality, in particular, ("Goodwin's," or "Sheep Ranch" Gulch) I noticed this jointed structure so well developed that a compact, almost imperishable rock could be quarried with facility, if desired, in nearly rectangular blocks and slabs.

It is not uncommon to find among these hills those peculiar holes in the rock which were hollowed out and used by the Indians as mortars in which to grind their food. I observed a number of similar holes in the hard rock, precisely in the bed of Rock Creek, in the ravine a short distance below the dam of the Salt Spring Valley Reservoir. It may be a question here, whether they owe their origin to the Indians or to the action of the stream, though from their peculiar deep and narrow form, I am inclined to ascribe them to the former. Heavy masses of flinty rock or hornstone also occur, particularly upon the southwest flanks of the range. This rock usually exhibits a much more distinct bedding than the ordinary mass of the hills. Its stratification is often perfectly regular, and sometimes the layers are beautifully thin and delicate. There is a very heavy outcrop of this finely banded rock in the ravine a short distance below the dam at Rock Creek. Higher up the hill, upon the road known as "Black's grade," another outcrop of the same formation has been cut across in building the road, and here a portion of the same flinty rock is thickly filled with fossils, which appear to belong either to some species of crinoids or facoids, though the structure is too much obliterated, and the specimens too much distorted to admit of definite recognition. They are apparently flattened in a direction parallel with the banding of the rock. From the general mode of occurrence of this hornstone, and from the frequent sharp and distinct lines of demarcation between it and the adjacent hornblende rock, it might be inferred that the former traversed the latter as veins, and the delicate banding of the rock, although parallel to the general stratification of the country, would not preclude such an assumption. But the fossils speak decidedly against it, and it is probable that the hornstone is a metamorphic form of fine sedimentary deposits, and that the banding is the result of the original stratification. Quartz veins occur here occasionally, and some of them at least are auriferous, though I know of none having been worked with profit hitherto. It is not improbable, however, that some of them may be found remunerative in the future, since many of the gulches among the hills here, in the early days of mining, were rich in placer gold. The degree of metamorphism throughout these hills has been very high; but I have seen no evidence of any direct igneous action;—at least no rock that I could identify as eruptive, with the single

exception, perhaps, of a small and apparently completely isolated body of well characterized granite, which occurs near the base of the Gopher Range, and between its highly metamorphosed rocks and the San Joaquin Valley, which is overlaid with tertiary and other recent formations. The occurrence of this patch of granite here, isolated as it seems from any other similar rock, is certainly a point of much interest; but I have not been able to study its relations. Its stratigraphical and topographical position is similar to that of the Folsom granite, and it may be connected with it in origin. If it should hereafter appear that there is a well characterized, though more or less interrupted line of granitic outcrop traceable throughout central California, along the lower foothills of the mountains, and west of the great belt of auriferous slates, it would have a most important bearing upon the theory of the general structure of the Sierra Nevada. The existence of such a line, indeed, might point to a very different, and perhaps more probable, *modus operandi* than that already suggested, by which the auriferous slates themselves may have reached their present position, and received their easterly dip.

One of the most interesting points connected with the geology of the Gopher Hills, is the auriferous belt in which occurs the "Quail Hill" mine, and of which I shall speak further presently.

Of the geology of Bear Mountain I know but little, having crossed it by but a single route. Where I have seen it, however, it consists largely of a similar rock to that which forms the mass of the Gopher Hills. Chromic iron is said to occur in considerable quantity at a certain locality in Bear Mountain, the exact whereabouts of which I could not learn. The slates of the valley extend, in general, completely up to the base of the Gopher and Bear Mountain ranges on either side, and sometimes a short distance up their flanks; but here the transition to the harder crystalline rock is usually quick and well marked.

Salt Spring Valley probably owes its existence, as such, entirely to inequality of denudation;—the comparatively friable slates yielding much more readily to mechanical action than the harder and more highly metamorphosed rock on either side, which has thus been left in the form of mountain ridges, projecting many hundreds of feet above the adjacent region, while the intervening and surrounding rock has been swept away to the plains below.

A partial description of the copper mines of Copperopolis will be found in the "Geology of California," Vol. I pp. 254-257. The depth of the main shaft in the "Union" is now stated to be a little over 500 feet, and the greatest depth reached in the "Keystone," is said to be 560 feet. All the deposits of ore here worked lie parallel with the strike and dip of the inclosing strata. The great ore mass of the "Union" mine forks or divides into two branches towards the northwest, and at the lowest depth now reached, its width or thickness, after having reached a maximum, is again diminishing. In the "Keystone" mine there have been two separate and nearly parallel bodies of ore worked to a considerable extent, and a third one was struck last spring previous to the suspension of work in the mine. The two main bodies of ore in this mine have "pinched out" or disappeared in various directions in their lines of strike and dip. They seem to have an irregular lenticular form, and, together with the great mass of the "Union," appear to lie in what are called "shoots," which pitch at an angle of 50° or 60° in the direction of the strike towards the northwest. The northwesterly prolongation of the strike of the great "Union" deposit does not coincide with either of the "Keystone" deposits, but passes east of them. There have been other and smaller deposits in the "Union" ground, more or less worked, lying west of the main body, some of which may possibly connect with the "Keystone" shoots, though the best information I could obtain leads me to think otherwise, and that they were probably isolated lenticular masses. The mass of the great deposit in the "Union" mine consists of an intimate mixture of chalcopryite and iron pyrites, containing on the average 16 to 17 per cent. of copper. Well defined selvages are not to be seen at Copperopolis, and the country rock is impregnated in all directions, sometimes to a considerable distance from the purer ore, with more or less finely disseminated copper and iron pyrites. In Europe it would pay to crush and work much of the wall rock itself for the copper which it contains; but here it is entirely worthless, as even 10 to 12 per cent. ore is not worth mining and shipping at present prices.

[To be Continued.]

Mechanical.

VULCANIZED RUBBER FOR WHEEL TIRES.

Engineering describes a novel experiment which has recently been tried by Mr. R. W. Thompson, Civil Engineer, of Edinburgh, the chief feature of which was the application of vulcanized rubber for wheel tires, on common steam carriages. The tires were made of india rubber, about twelve inches wide and five inches thick. Incredible as it may appear, this soft and elastic substance not only carried the great weight of the road steamer without injury, but passed over newly broken road material, broken flints, and all kinds of sharp things without leaving even a mark on the india rubber. The tires did not sink into the road in the least degree. They passed over stones lying on the surface without crushing them.

The india rubber tires require scarcely any more power to propel them over soft bad roads or over loose gravel roads than on the best paved streets. The reason of this is quite obvious; they do not sink into roads, and do not grind down the stones in the least degree.

The trials commenced by running the road steamer across a soft grass field, and it was afterwards taken across a part of the field which has just been covered with loose earth to the depth of one or two feet, and run straight across, and then back through the deep soft soil. The weight of the road steamer was between four and five tons; and yet the wheels, in passing over the loose earth, compressed it so little that a walking-stick could easily be pushed down in the track of the wheels without any exertion. After various evolutions, showing the ability of the steamer to run about where there were no roads, it passed out into the street, and, taking a large omnibus full of passengers in tow, proceeded up the Bonnington road to Messrs. Gibson and Walker's mills, where it took a large wagon, with its load of flour, about ten tons, up a steep lane full of holes and ruts, and rising with a gradient of one in twenty. It was obvious that the road steamer was able to do a great deal more than it had to do in this trial. The bite on the road is something marvelous, and the easy way in which it floated along on its soft and elastic tires was very curious. When riding on the road steamer, the feeling is like what would be experienced in driving over a smooth soft grass lawn. There is, absolutely, no jarring at all. There was no appearance of wear on the india-rubber tires. The original surface which the rubber had when it left the manufactory was still visible after its return. The engine is destined for Java, where it will be employed in drawing trains of wagons between two ports.

THE FIBER OF BOILER PLATES.—It is thought by many that the fibers of boiler plates should always be made to run with the curvature of the boiler. Fairbairn's experiments show a strength of twenty-three tons across the fibers, and twenty-one tons parallel to them; but the experiments of the Franklin Institute show little or no difference. The difference in favor of the fiber running with the curve is no doubt small; but there is a difference beyond doubt, and it would seem to be the part of wisdom and humanity to pay, at least, a small per cent. in favor of the greatest degree of safety. There may often be a little saved in cutting iron so as to ignore the direction of its fiber; but the increased risk in the reputation of the builder more than counterbalances the saving in cost. The Franklin Institute experiments, above alluded to, were made many years ago; since which time great changes have been introduced into the manufacture of iron, which might produce important modifications in the experiments, were they to be repeated at this time.

SHEET IRON RAILROAD SLEEPERS.—A curious plan for a temporary railway, to be laid for the benefit of the English forces in their excursion to Abyssinia, has been proposed by a Mr. Hadden. The peculiarity consists in making the sleepers of flattened cylinders of sheet iron, closed at one end, and which are to be filled with sand or gravel well packed. The sleepers are then to be laid on the ground with little or no ballast, and the rails secured to them by clip pieces, so as to be easily removed when desired.

STEEL PLATING RAILS.—The great superiority of steel over iron for railway bars, has led to quite extensive experiments for cheapening their production by welding a thin steel plate to the top of an iron rail. This experiment was at first thought to be a success, but time, which reveals all imperfections, has proved that a rail so prepared by the best process known at present, cannot be relied upon. The *Engineering*, however, thinks it may yet be done. We give below the remarks of that journal on this important matter:

None who have any faith in the future of invention and discovery would pretend to fix limits to the degree of improvement that may yet be attained in processes which, although already carried out with some success, are not yet satisfactory. It may yet be found practicable to make a perfect weld between a steel top and an iron stem of a railway bar; but this has not been thoroughly done yet. Many trials have been made, and it was for a long time believed by a number of engineers that the plan pursued at Crewe, of welding steel tops to iron stems, with an intervening layer of puddled iron, would secure perfect soundness. Unfortunately, this is not the case. The steel-topped rails in use on the London and North-Western railway have been found to show, after a time (and that often in warm weather), a slight crack between the steel and the iron at one point in their length. Once opened, each successive train extends this crack until the whole of the steel top comes off as if it had been fastened by some kind of cement rather than by welding. We have been shown large numbers of the tops which have so peeled off, and no doubt any gentleman really interested in knowing the facts will be shown the same discovered *caputs*, on application in the proper quarter.

STEEL RAIL.—The practical advantages of steel rails may be learned from the fact that the Boston and Providence Railroad Company have laid down 1,200 tons of steel rail upon their road. The experience of the company at Roxbury, where 120 trains pass daily, is sufficiently conclusive to warrant the expense of the change, since the iron rails at this point were required to be renewed seventeen times in one year, while the steel rails laid over a year ago have not been perceptibly affected by the constant traffic. Several roads in Pennsylvania have arrived at the same conclusion, and, being convinced that the increased expenditure is true economy, are making the change as fast as their resources will permit. When the substitution becomes general, accidents from the breaking of the rails will be prevented.

A BRITISH engineer has invented a rail of novel description. The new rail will be of steel and have a head and neck only, instead of being double-headed, as is the prevalent form. The rail will be supported on rolled iron "cheeks," which will form a continuous bearing, rendering the ordinary chairs unnecessary. The three pieces of which the rail consists, are bolted together by three-quarter inch steel bolts, eighteen inches apart. This new rail with steel head will not exceed in expense the ordinary double-headed iron rail in common use.

THE PARIS EXHIBITION.—ENGLISH OPINIONS.—Robert Mallet, F. R. S. of London, writes as follows of certain American inventions exhibited at the Paris Exposition.

Among the engines which possess more or less of interest departing widely from established types, may be mentioned several rotary engines, none of which even approach the solution of the difficulties inherent in this class, except one from America, which, however, is far from perfect. Also the strange, single-acting, high-pressure engines of Hicks, of the United States, in which the plunger pistons, by the aid of certain perforations and passages in them, are made to perform the functions of their own valves; and Andrews' (of the United States) oscillating high-pressure engine, with a curved faced slide, a segment of a cylinder described by a right line transverse to the cylinder by the oscillation of the latter. This engine actuates an American centrifugal pump, the construction of which is peculiar, and deserves attentive consideration. Centrifugal pumps present little beyond the old models seen in 1862 and at other times. The American centrifugal pump is an exception, however; as is also a centrifugal pump in the Swiss annexe.

Scientific Miscellany.

Impurities in the Atmosphere.

Rain water, even when caught direct from the clouds, contrary to common belief, is usually less pure than good spring water. Rain and snow in descending, absorb a notable amount of the various gases which are ever present in the atmosphere, and which arise from the combustion of fuel, and from the slow decay of organic matter. Even the nitrogen and oxygen, of which atmospheric air is composed, vary largely in their proportions, according as the air is moist or dry. The moisture of the atmosphere, moreover, aids it in taking up and retaining by absorption many gases, of which a greater or less amount is always present in the atmosphere.

Nitric acid is always formed by electrical discharges, the nitrogen of the air being thereby directly combined with its oxygen; and ammonia being present, as an exhalation from decaying organisms, nitrate of ammonia is also found. This latter substance has been found to exist in sufficient quantity in rain water to redden blue litmus paper. Snow may contain more nitric acid and more ammonia than rain, and hail more than either, for the reason that they are more readily absorbed by cold than heat.

Sulphuric acid is always present in the atmosphere in the vicinity of large cities where much coal is burned. So large is the amount of this acid in the atmospheres of London and Manchester, in England, that it even causes noticeable disintegration of the stones of which many of the buildings of those cities are built, especially where lime enters to any extent into their composition. Carbonic acid is also always present in the atmosphere, as a resultant from combustion.

Sulphureted hydrogen is also largely present in tropical atmospheres, where a large amount of vegetable decomposition is taking place. It is thought that iodine has also been detected in noxious fogs and mist. Marsh gas is found in the atmosphere of miasmatic regions.

A notable quantity of salt is always found in the air near the sea coast. This is readily proved by the analysis of the rain water caught in such localities. In the immediate vicinity of the sea, salt is found to be present in rain water to the extent of seven parts of salt to one million of water. One hundred miles from the sea that amount is reduced about one-half. The French chemist, Berral, estimates that fully sixteen pounds of salt descends annually on each acre of ground in the vicinity of Paris. Snow and hail always contain less salt than rain, from the fact that they are formed at greater elevations.

The above facts are quite sufficient to account for the impurity of rain water, and show how it may very readily contain a greater variety of impurities than those obtained by the percolation of water through the earth.

EFFECT OF ABSENCE OF SOUND.—Dr. H. Ralls Smith, of Louisville, Ky., by certain investigations, claims to have established the truth of the theory that animals living permanently in the Mammoth Cave of Kentucky, are not only without a trace of the optic nerve, but are also destitute of the sense of hearing. At one time he penetrated about four miles into the interior of the cave, and some 400 feet below the surface of the earth, the solitude and total absence of sound produced a very distressing and almost insupportable effect upon him, resulting in a very perceptible, although temporary, defection of hearing and aberration of mind. This explains the fact why persons lost in the cave for one, two, or three days have always been found, when rescued, in a state of temporary insanity. The mind and special senses, deprived of their natural pabulum and stimulus, gradually become weakened, paralyzed, atrophied, and finally as far as external manifestations are concerned, nearly, if not quite extinct. This fact may afford some clue to the cause of cretinism, a species of idiocy in the Alpine valleys.

Earthquake Waves.

The papers have lately announced the terrible destructive force of waves of the sea, produced by earthquakes in the West India Islands.

Professor Brocklesby, in his *Elements of Physical Geography*, states some facts of an interesting character in reference to the velocity of these waves. On the 22d of December, 1854, immediately after an earthquake, the sea rolled in upon the town of Simoda, in Japan, in a wave thirty feet high, overwhelming it in an instant. After the wave fell there were only four feet of water in the harbor. Four or five similar waves followed at intervals, completing the destruction of the town.

Professor Bache, of the Coast Survey, by observations made on the tide-gauges at San Francisco and San Diego, which registered all changes in the sea level, discovered that these earthquake waves at Simoda traveled across the Pacific. The distance from Simoda to San Francisco is 4,527 geographical miles, which was traversed by the waves in twelve hours and twenty-eight minutes, or with a velocity of six miles a minute. At San Diego, which is 4,917 miles distant from Simoda, the waves arrived an hour later, the velocity being sensibly the same. The curious fact is stated that the breadth of a wave, its velocity, and the depth of water in which it travels, have been found by Professor Airey to have a relation to one another. For example, a wave 100 feet broad, traveling in water 100 feet deep, has a velocity of 15 miles per hour; while a wave 10,000 feet broad, traveling the ocean with a depth of 10,000 feet, advances with a velocity of 154 miles per hour. So that, giving the velocity of a wave and its breadth, the depth of the water may be calculated. Professor Bache, from this data calculated a depth of the Atlantic and found it to be on an average of 22,000 feet, a result corresponding with soundings made.

The force of ocean waves have been calculated. During a storm on the western coast of Scotland, in March, 1845, the force of the waves was estimated at 6,000 pounds per square foot. It would seem that the immense wave, which like a wall thirty feet high, moving with resistless velocity, struck the ship of war *Monongahela* broadside, in the harbor of St. Thomas, and drove her from her moorings, forcing her over the tops of the warehouses, and leaving her, when the wave receded, high and dry on the coral reefs of the island, must have had a force even greater than 6,000 pounds to the square foot. If the ship had not yielded to the terrible impact of the water and moved shoreward, if she had been stationary and immovable, she must have been crushed like a cockle boat or a shell by the terrific blow given by the wave.

PECULIARITIES OF IRON.—Certain cast irons, identical in composition, are widely different in appearance, and give, when analyzed, quite diverse products. Again, there are certain cast irons of the same composition, as certain cast steels, and even steel which analysis can scarcely distinguish from certain iron. So noticeable are these facts, that in studying the metallurgical products of iron, its chemical composition is often but a secondary consideration.

The really dominant characteristic which exists between the properties of the various irons and steels, appear to be referable to the different degrees of oxidation in which the iron occurs in the ores from which it is extracted. So patent has this fact become, that the opinion is rapidly becoming general that steel should be made only from certain kinds of ores, which may be denominated steel ores; while the different kinds of iron should be made only from such ores as appear to give definite products, not interchangeable with each other.

These facts have led to the theory that iron in a metallic form possesses, at least, two allotropic conditions, somewhat analogous to the allotropic conditions of sulphur and of phosphorus.

A SUBSTITUTE FOR DISTILLED WATER.—A correspondent of the *British Journal of Photography* says, when in the wilds of Wales or Scotland, where it is difficult to obtain distilled water for photographic purposes, he hoiled the purest river or spring water he could find, and, after adding to every ounce a quarter of a grain of nitrate of silver, allowed it to stand, and when cold, filtered. This solution met every requirement.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and important inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

72,197.—**MACHINE FOR CUTTING OUT GLOVES.** Jesse H. Harlan and Thomas Pomeroy, Denver City, Col., assignors to themselves and Wm. H. Harlan.

We claim the adjustable knives of a glove cutter, when constructed and arranged substantially as shown and specified.

72,385.—**STRAP FASTENING.**—Rodmond Gibbons, San Francisco, Cal.:

I claim the hand-fastening, composed of the two plates or portions of plates, one plate having a tooth or long spur, which projects down into or towards a groove in the opposite plate, substantially as shown and described.

RECENT INVENTIONS.

A NEW QUARTZ MILL BATTERY.—Mr. D. J. McDonald, a millwright, of Virginia City, and for some time in the employ of the Hale & Norcross Company, has invented a new quartz battery, which is described by the *Territorial Enterprise* as follows: The stamps are all within a large harrel, which contains a flooring of inclined planes of chilled iron. As the harrel revolves, the stamps are raised to a height of six inches by the inclines, and dropping, fall upon the foot of the next incline and the ore upon it, which is reduced both by the direct blow of the felling stamp and by its sliding or grinding action in passing up the incline for another fall. Each harrel will contain a battery of six stamps. The ore is fed into the end of the barrel, and the pulp passes out through a screen, which forms the rim, and then is conducted to another harrel, fitted up somewhat like the first, but for grinding instead of stamping. In this harrel the amalgamation is done. Afterwards the pulp (waste) passes through revolving blanket sluices of an improved and peculiar style. The whole arrangement is of a novel character, and unlike anything we have ever seen. The machinery is of a nature so complicated that it would be useless to attempt a particular description. We have said enough to give the reader a tolerable idea of the plan of the battery, and to descend to minutiae would but confuse. Mr. McDonald is about taking the necessary steps for securing a patent for the whole mill, battery, amalgamating apparatus and blanket sluices. He is the inventor of an improved steam (or water) derrick, on every part of which he some time since obtained a patent. He will doubtless obtain a patent on his crusher, and perhaps on the whole of the machinery used in his mill.

A NEW MORTAR BOX FOR QUARTZ MILLS. The Eastern papers are making much ado about a new mortar box for quartz mills recently invented by Mr. George H. Nissen, of Christiania, Norway. The invention, says a Halifax paper, is likely to give a fresh impetus to quartz milling, not only here but in other countries, as it saves from 50 to 200 per cent. more gold than any known process that can be applied to the reduction of ores on a large scale. The discovery is the result of mature reflection and practical experience, Mr. Nissen having operated for many years as a miner, amalgamator and millwright on his own account in Colorado. The Orient Co., at Wine Harbor, were the first to test the value of the new mortar box, and so satisfied are they and other companies of the advantages to be gained by its use, that the inventor has already received orders for fitting up six mills, with an aggregate of 240 stamps, upon his improved principle; and there seems no doubt of its ultimate adoption by all quartz millers who consult their shareholders, and their own interest.

Of course no Californian, who has had any considerable experience in mining and milling machinery in California, will place any confidence in such an absurd statement as the above. The mortar box has very little to do with the ultimate saving of gold. It is possible, however, that that portion of the battery may be materially improved, and other advantages introduced for the gold-saving part of its work. The papers give no description of improvement.

A NEW RAILROAD INVENTION.—A car carrying its own track, and designed for use on common roads or the streets of a city, has been brought out in Philadelphia. In

this vehicle the car moves the wheels instead of the wheels moving the car, and the wheels do not touch the ground at all. There are six pairs of wheels, and each pair has a broad flat foot attached. These "feet" rest on the ground and bear up the wheels, while two rails under the body of the car are made to roll along the upper surface of the tire as if it were passing over so many pulleys or friction rollers. The feet and wheels are all connected by an endless chain, and as fast as the body of the car passes beyond one of these feet it is lifted from the ground and made to travel along to the front of the car, where it drops on the road again, and the whole is thus kept in continuous motion. The wheel track in fact "walks" along the road while the car itself rolls along over the wheels.

INGENIOUS CHAIN MACHINE.—A watch company in Rhode Island has invented a chain machine, which is one of the most ingenious and elaborate pieces of work ever devised. This machine takes the bar gold and transforms it, without noise, to the most delicate and substantial form and vest patterns.

A new style of row boat has just made its appearance on the Hudson, says the *Quebec Morning Chronicle*, and in it a man has been navigating Rondout creek. It is a curious looking craft, and resembles a ladder with pointed ends. It is composed of two tin tubes, air tight, about twenty feet long, fastened together about eighteen inches apart with light iron bars. The rower sits in the center, and skims over the water with great speed, guiding his odd-looking craft with much ease.

THE MECHANICS' MILLS, belonging to the estate of the late Mr. James Brokaw, have recently been purchased by a company of practical mechanics—employés, principally, of the establishment. The new corporation is known as the *Mechanics' Mill and Manufacturing Company*. Objects—the sawing and planing of lumber, and the manufacture of doors, eash, blinds, moldings, etc., together with every description of wood-work "finish" for buildings and steamboats. The establishment embraces six water-lots, four of which are situated on the south of Mission street, and two on the north, and between First and Fremont,—the cost of leasehold, buildings, machinery, etc., being in the neighborhood of \$25,000. It is a fact worthy of mention, as an indication of the thrift, energy and enterprise of the industrial classes of this city, that the entire amount of the purchase money was raised without placing any incumbrance upon the property of the Company or that of any of its members, the majority of whom are working men.

The only officer receiving a salary, as we are informed, is the manager, under whose supervision the business is conducted. Mr. Asa R. Wells, a well known leading mechanic in this branch of manufacture, has been elected to fill the above-mentioned position. Capital and labor are not necessarily antagonistic—they are absolutely dependent upon each other. When the former is wanting, a remedy is found, as in this instance, in the formation of joint stock companies or coöperative associations. Like the commingling of the waters of many rivelets, hundreds are swelled to millions, and a new impetus is given at once to both labor and productiveness.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

SAN FRANCISCO LIFE INSURANCE CO.—Jan. 27th. Capital stock, \$100,000; 1,000 shares, \$100 each. Directors: C. G. Athearn, John Bamber, Henry A. Crane, John Center, Chas. N. Fox, J. Funkenstein, Nathaniel Gray, W. T. Garratt, Joseph Galloway, A. Himmelman, W. Holdredge, Theodore Meetz, J. J. McKinnon, Joseph Moore, M. Rosenbaum, H. Rosekrans and S. P. Taylor.

PIONEER AMERICAN FUR CO.—Jan. 28th. **NOE GARDEN HOMESTEAD ASSOCIATION.**—Jan. 29th. Capital stock, \$165,000; 368 shares, \$450 each. Trustees: Geo. Cofran, Wm. R. McKee, John S. Luty, George S. Crim, Isaac S. Allen, W. S. Urmy, R. P. Franklin, M. S. Osterhaus and Robert Mayers.

ELECTION OF OFFICERS.—**MARKETMEN AND RETAIL DEALERS' ASSOCIATION.**—Jan. 28th. President, B. M. Atchison; First Vice President, Peter Gaughran; Second Vice President, D. R. Avery; Third Vice President, Jas. Harvey; Recording Secretary, Ahram Moger; Financial Secretary, W. H. Eldridge; Treasurer, Samuel Foster; Sergeant-at-Arms, John E. Douglass.

JOHN B. GOUGH.—It is stated on good authority, that John B. Gough has entered into contract with Mr. Moody, of Boston, to deliver eighty lectures a year, for the next ten years, under his (Moody's) general direction. Mr. Moody is actively engaged in building up Young Men's Christian Associations; and the legitimate inference is that these eighty lectures a year will be given in behalf of that cause. Eighty lectures a year is about as much as a man of Mr. Gough's years can well undertake; so that we may infer that this distinguished orator will hereafter devote pretty much his entire energies and eloquence in aid of the spread of Christianity among the young men of our country. Mr. Gough is a power in aid of any cause in which he may engage. It is among the most pleasant memories connected with the early life of the editor of this paper, that he was one of the first to extend an encouraging hand and voice to Mr. Gough in his early efforts for reformation and usefulness. Meeting him accidentally on one occasion, at a small gathering of Westingtonians at a district school house in one of the smaller towns of Norfolk county, Mass., we were strongly impressed with the evidence which he exhibited of extraordinary native talent in public speaking, and took him to our home in the neighboring town of Dedham, with the view of persuading him to devote his entire energies in aid of the Temperance cause. Though persistent in his inability to be in anywise extensively useful, he finally consented to make the attempt, provided we would accompany him on a kind of experimental trip through the principal towns of the county. He insisted, however, on commencing at some of the smallest and most out-of-the-way localities. We well remember the effort it cost us, on one occasion, to persuade him of his ability to speak twice on the same day to the same audience, at a country temperance gathering. He consented to speak the second time only, at the most urgent importunities; distrusting his ability to get through with his second address, without too much repetition of the first. The result was a triumph; he produced a most decided impression.

Mr. Gough even then, never made any preparation for his addresses, but relied solely on the inspiration of the moment. Still more strongly impressed with the increasing evidence of talent which he evinced during this series of appointments, we advised him to enter upon a still wider field of labor, and soon after had the pleasure of introducing him to the care and patronage of that well known Apostle of Temperance, the late Deacon Grant, of Boston, under whose direction he soon took a high rank as a popular speaker, and developed that wonderful power of persuasive eloquence, which a few years later drew from Daniel Webster the remark that Mr. Gough was the greatest natural orator that ever lived. His subsequent career of usefulness, both in this country and Europe, is well known. We trust he will meet with equal success in the new and somewhat novel field of labor in which he has just engaged. May his life be spared, not only to complete, to its full, the engagement upon which he has just entered; but may he live to perform yet other and greater labors of love and mercy.

A RIVAL KING.—"King Cotton" has received a heavy blow and great discouragement in the New World lately, and some people are of opinion that he may as well abdicate. A discovery has lately been made in Missouri, which seems to offer a substitute for the cotton plant. The new plant is called the *ramie*, which gives a fine fiber of great strength, and glossy white, and it may be used for cloth, or combined with silk or wool. It is not affected by heavy rains, and endures heat as well as cotton. It yields eight hundred pounds per acre, and gives two crops in the year. The Mexicans grow it with great success, where the rains are much more prevalent than in our Southern States.

The Sacramento river is still about twenty feet above low water mark.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—*John Smith.*

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—*J. C. Felton.*

After an careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—*Wm. H. Hall.*

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—*F. W. Hatch.*

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text-books.—*James Leiman.*

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—*Martin Kellogg.*

I recommend it to all those who wish to obtain a book that will give them definite ideas on this subject, and teach them to express their thoughts and feelings in a clear, simple, and forcible manner.—*Caroline L. Atwood.*

I regard the book about to be published as far superior to any work extant upon that subject.—*Wm. S. Hunt, A. M.*

I believe the work will be a valuable and much needed addition to our school text-books.—*Hernon Perry.*

You have brought the results of a profound analysis, and made them available, in a practical form.—*L. H. Brayton.*

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and as advocates at the forum.—*John Curry.*

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. * * * It will soon become a necessity in every lawyer's library.—*Charles A. Tullie.*

Its clearness and comprehensiveness make it easy.—*G. W. Dozier.*

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end. He seeks to teach the student not only how to take sentences apart, but how to construct them. His system has the merit of originality. We know of no work in which can be obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Layres has done the cause of popular education good service.—*S. F. Bulletin.*

This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—*Alta California.*

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—*S. F. Times.*

Prof. Layres plunges at once "in media res." He seizes a sentence (which is the unit in composition, whether written or spoken,) holds it up before you; tears it to pieces before your eyes—or rather, we should say, neatly and skillfully dissects it—displays one by one its several parts; makes you thoroughly acquainted with each, in its entirety; and then shows you how to put them together again. A series of such experiments, increasing in complexity as gradually that you do not feel the difficulty, and the thing done, you are master of the subject.—*Mining and Scientific Press.*

Its design is to show that ideas can be so arranged as to increase their power; in short, to teach the mechanism of composition, eloquence and oratory. A desideratum long felt is supplied.—*S. F. Examiner.*

This is an age in which the occasions are rapidly multiplying, when educated men, and women, too, are called upon to express their views in writing, either for public or private inspection and criticism.—*Stockton Independent.*

The most eminent educators in California give it their hearty approval, and we concur.—*Maryville Appeal.*

Not only one of the best of its kind, but what is still better, one of the briefest. It contains 166 pages.—*Virginia Enterprise.*

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Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Amador County.

From the *Ledger*, Jan. 25th: Last Sunday was "clean up" day at the Oneida mine, and it proved to be a good one. They have been running two weeks on what they term "prospect rock," and the result of the "run" was 615 ounces of gold, after being melted down, and is worth eleven thousand eight hundred dollars. There is no humming about this, we saw the amalgam before it was melted, and then the "brick" made out of it. Mr. Pringle, who is now in charge, informs us that within the past few days, by drifting north, they have struck another vein of rock far richer than any yet discovered, and that the ledge is about fourteen ft. wide.

On Thursday last, the Coney & Bigelow mill, at this place, was put in motion, after undergoing a thorough overhauling, and everything was found to work like a charm.

Butte County.

The *Oroville Record* says: New diggings have been struck near the Oroville race track within the past week or two, and parties have been very busy prospecting around in that vicinity. Many claims have been located, and shafts have been sunk to the depth of 15 or 20 ft. A strata of pay dirt has been found that prospects from 4 cents to one hit to the pan. There is no reason why that whole section of country should not afford profitable mining, for the river has been mined below it, and the valley between the new diggings and Rose station has afforded surface diggings for a number of years. The Forsyth boys had sunk a shaft to the depth of 15 or 20 feet, prior to the recent storms, and obtained an excellent prospect. Some 15 or 20 have been started, but the earth is so saturated with water that it is impossible to get down without the aid of pumps. Another Spring will undoubtedly see the whole country turned over.

Calaveras County.

Chronicle, Jan. 25th.: Paul & Co., after running a tunnel 900 feet in length, through solid bedrock, costing three years continuous labor, are now reaping a rich reward. Upon striking through into gravel their tunnel was found to be about 13 feet too high, necessitating the running an incline, up which the gravel is hauled with mules. The water which collects in the mine is removed by means of a syphon. A drift some 200 feet in length has been run directly on the lead, developing an immense body of exceedingly rich gravel.

At the "Coffee Mill" claim, they are taking out good pay dirt. A thousand car loads of auriferous gravel are already spread in the "drying yard." This mine is worked through an incline tunnel of great length, up which the gravel is hauled by a steam engine. Two tunnels have been run in the claim; the first one being too low.

Messrs. Prindle & Bowman have been compelled to partially suspend operations in consequence of the frequent breakages of the ditch which supplies their mill with water. They also evidently miscalculated the position of the lead in selecting the side for their shaft. As early as practicable in the Spring a new shaft will be sunk.

Mr. Shaw, proprietor of the old "Guy Claim," is knocking things "endwise." Under the powerful influence of a hydraulic pressure of 250 feet fall, Stockton ridge is melting away like grass before the mower.

In quartz we have no new discoveries to chronicle. Staples & Co., notwithstanding the bad weather, have persevered in the erection of their mill, and will be ready to commence operations on Monday next. Norton & Co. are progressing rapidly with the development of their claim. Alexander, Seavers & Co., in the same vicinity, are crushing rock with most satisfactory results.

San Andres *Register*, Jan. 25th: Mr. William Irvine has at last reached, in his excavation, a bed of the richest pay-dirt ever found upon the old "Blue Lead."

Amador Ledger, Jan. 25th: We learn that the mines at Cat Camp are all doing well—making from \$2.50 to \$10 per day to the hand, after paying for the water. There are about 300 white men and 200 Chinamen at work there now, and the number will be increased as soon as the water can be got in.

Nevada County.

Transcript, Jan. 21st: In several mining localities in this county, work has been suspended for several weeks for want of water, and in other places the great depth of snow prevents men from working. The damage to ditches, flumes and other works necessary to carry on mining, has been great, but the delay consequent upon repairing of

damages has been a very much greater loss to miners.

Jan. 23d: The miners in the vicinity of San Juan have had abundance of water, and the extensive hydraulic claims have been worked without interruption. The yield continues to be excellent.

Jan. 25th: The difficulties of the Jim mining company have all been settled. A new corporation has been organized under the name of the Mutual Gold and Silver Mining Co., which has assumed the liabilities of the Jim Company and paid the debts.

Gazette, Jan. 25th, Diamond Creek correspondence: But few of the miners are doing anything at present. The Salathiel Company, on the Mary Etta ledge, are not running the mill, having crushed all the rock they had out. In the upper tunnel they are taking out splendid rock.

Of gravel claims, there is only one working at present, which is owned by M. A. Singleton. He discovered the ground about a year ago, and has been working it ever since, whenever he could get water, the claim yielding at the rate of \$10 and \$12 per day to the hand.

Grass Valley National, Jan. 21st: At the Gold Hill mill there is now being crushed 500 loads of rock, from the Dromedary ledge. It is estimated that it will pay from \$30 to \$60 per ton.

Jan. 27th: A letter from Colfax says prospecting has been suspended until the storms are over. In quartz mining, the Rising Sun alone are prosecuting their work with vigor. They are now over 100 ft. below the surface. I have it from good authority, that they have found a rich and well-defined ledge.

Jan. 28th: The New York Hill Co. have given out several large contracts for mining tunnels in their mine.

Union, Jan. 24th: On the 17th inst., the stockholders of the Scandinavian mine held their annual election for Trustees. The election was an animated one, being a contest between the Smartsville and the Pleasant Valley shareholders—Pleasant Valley winning. The mine is looking well, and work is being pushed forward, night and day. We learn that measures are about being taken to increase the capital stock of the company.

Placer County.

Dutch Flat Enquirer, Jan. 25th: Most of the mining claims in this vicinity have been compelled to suspend work on account of the inclement weather.

Iowa Hill correspondence of the same: On Bird Flat, the old St. Lawrence mine is yielding tolerably well. The Dayton Co. have six to eight ft. of pay gravel. The dirt is rich.

Auburn Herald, Jan. 25th: The famous claim of McGonagle, Perry & Co. on the Black ledge, still continues to yield the ore. On last Saturday night's shift, some 10 or 12 lbs. of gold was taken out.

Work has been again commenced on the Green Emigrant claim by the original owners, and although at a different point from where it paid so handsomely, the surface prospects a bit to the shovelfull.

Plumas County.

Quincy Union, Jan. 11th: The Whitney mill will commence crushing quartz again next week. The company are taking out some very good rock.

The Caledonia mill at Cherokee cleaned up \$2,500 for last week's run.

The Crescent mine is still filled with water, and the mill is lying idle for the present.

Judkins & Kellogg have an abundance of water, are running all the stamps, the roads are in good condition, the mines free from water, and the quartz paying handsomely.

Shasta County.

Courier, Jan. 25th: McPherson & Co. are pushing along their fluming enterprise, at Piety Hill, with energy. We understand that when the main bedrock ditch is completed, several acres of mining ground can be worked through it. A portion of this ground is from 10 to 20 ft. in depth, and prospects well from top to bottom. The well dug to supply the village of Piety Hill with water is some 60 ft. deep, and the gravel taken from it prospected regularly all the way down.

Residents of Churntown say that times are duller there this winter than ever before known. The rains which fell during the early part of the season were so light as to produce but a temporary supply of water.

COLORADO.

Central City Register, Jan. 7th: Not for four years have there been so many mills running in Black Hawk as now. Every one that is fit to run is in use, crushing custom rock for from \$4.50 to about \$6 a ton. It costs, with everything cut close, about \$3 a ton, thus leaving a handsome margin for profit.

C. T. Sabin brought yesterday, 17 ozs. of fine gold, taken by Bertolani from 2½ tons of Coyote ore, Trail Creek.

The Powabic Co. are again crushing in Chicago mill at Black Hawk, and also supplying Jo. Kenyon with ore.

The Clark-Gardener Co. have got their new shaft down to a sufficient depth, 240 ft., to drain the old workings. The walls have been 11 ft. apart all the way, the rock crushed growing better constantly, paying at first only \$6 to \$8 a ton, the last crushed yielding nearly as much again.

We have seen a hutton of silver weighing 18 ozs. taken by Mr. Kirkland from 100 lbs. of Young America ore.

Yesterday claims Nos. 1 and 3 W. on the Topeka, 1 E. on the Junction, and 6 E. on the Saratoga were sold by Mr. Atkins, under a decision in chancery, on the street. Mr. Sayre bought them at \$18,500.

The shipments of gold from Central City during December, 1897, per Wells, Fargo & Co's express, amounted to \$118,662. It has nearly all been taken out by stamps.

Mr. Conlee is working five shafts on the Kansas and Burroughs lodes, but his ore principally comes from the bottom of the Gilpin Co. property. Last week he mined and hired crushed, at a cost of \$5 for mining, and \$7.50 for hauling and crushing, 175 tons, the same producing \$18.50, currency, per ton. About five per cent. of the best ore was saved for the smelters. Mr. Conlee designs to employ the N. Y. mill. Peregrine's, the Sterling, and Mendell's, 80 stamps in all, steadily from this on. They will crush about 240 tons a week, which will yield from \$15 to \$20. About seven per cent., 16½ tons, estimated to be worth \$100 a ton, will be saved for the smelters.

The Gilpin Co. was organized four years ago, sent an agent of experience in mines. He expended in the course of about three years, \$60,000 for the company, never realized a dollar from the property; but on the contrary, damaged it as we are informed, to the amount of \$10,000. He was finally relieved, and the property laid idle up to a recent date, when the company leased it to Mr. Conlee, with the result above stated. This goes to prove that gold quartz mining in Colorado has been a comparative failure during the last three or four years only because of the most outrageous and incomprehensible mismanagement.

Georgetown Miner, Jan. 9th: Mining items are scarce during the present inclement weather. Work, however, on lodes that are provided with shaft houses is being actively prosecuted.

Garrott, Martine & Co. will start their mill again when the weather moderates.

We learn that Messrs. King & Hill have struck the east extension of the celebrated Herkimer lode.

DACOTAH.

Gold Hill News, Jan. 20th: By mail from the east we have received the prospectus of a new paper to be called the *Sweetwater Mines*, and to be published at South Pass City, Dacotah Territory, by Warren & Hazard. The paper will be issued tri-weekly. The prospectus says confidently: "Within the past six months a gold mining country has been discovered on the Sweetwater river and its tributaries, near the South Pass, that for richness surpasses anything of the kind ever found on the American continent, and so far as prospected, second to none in the world. The wonderful discoveries of both gold quartz and placer mines during the past four months warrant us in thinking that within the next 12 months a population of at least 50,000 people will be found where only in July last 'Poor Lo' beld supreme sway. The section contains several of the largest and finest agricultural valleys in the western country, beautiful, and the climate without a superior."

IDAHO.

World, Jan. 15th: Yesterday a party of four came in from Deadwood Basin on snow shoes. Snow is only about three feet deep in the basin, and those camping there have plenty of everything for the winter. The prospects for the ensuing mining season are very gratifying, and one ditch, of 6¼ miles length, has been completed.

Over one million in treasure has been shipped from this city to San Francisco through Wells, Fargo & Co. during the year just ended. An equal amount must have been taken away by parties assuming their own risk; and a large amount by packers, teamsters and produce dealers. Altogether, we do not hesitate to venture the statement that fully two and a half million dollars, in gold dust and bars, the product of this basin alone, has been taken from here during the past year.

Correspondence of the *Boise Statesman*, dated Dec. 31st: In Yuba district there will be two 20-stamp quartz mills erected next season. At Rocky Bar, the tunnel of the Red Warrior, 350 ft. deep, is finished, and strikes

the ledge 110 ft. below the surface, with a shaft run from the old tunnel, 60 ft. above, down to it. The ledge is 12 ft. wide. A drift 40 ft. east discovered a mass of splendid quartz. The writer speaks very favorably of the Casco, or Wide West, the Confederate Star, the Ida Elmore, the Pittsburgh, the Golden Star, and the Idaho ledges.

Owyhee Avalanche, Jan. 18th: Very rich gold bearing quartz has been struck in the Woodstock mine, in the tunnel which is being run to tap the main shaft at the bottom. Only about 10 ft. remain to be run in order to complete the connection, work having been vigorously pushed forward from the bottom of the shaft, as well as from the outside.

Trask & Son have their new arastra building about completed. It is 28 ft. in width, and 60 in length. The wheel will be an overshot, 33 ft. in diameter, and will be run by water from Webfoot Gulch. A common arastra will be put in operation early in the spring, but it is the intention to substitute stamps next summer.

From Jan. 1st to the 16th, 800 tons of quartz have been hauled to the different mills from the Oro Fino, Golden Chariot and Ida Elmore mines. During the same time it is estimated 600 tons of ore from the Poorman have been delivered at the Owyhee mill—making an aggregate of 1,400 tons.

The Poorman is paying handsomely at present. The ore worked at the Owyhee mill yields 75 lbs. of bullion per day, after being retorted and made into bricks.

We stated last week that 50 tons of Ida Elmore quartz were at the Webfoot mill, instead of which we should have said 50 tons of Oro Fino.

MONTANA.

Post, Jan. 11th: Helena items: A new lead has lately been discovered near the Atlantic Cable lode, which is said to be much richer than even that celebrated lode. The lead was struck by Messrs. Thomas & Co., and it has a crevice 15 ft. wide. Specimens of the rock are on exhibition, which show considerable free gold.

We understand that Col. Henry Allen has formed three large companies, to operate in the Ten Mile district—one in St. Louis, one in Boston and one in New York—all of which will bring out machinery and ample means to prosecute their labors. In addition to these, Prof. Swallow designs bringing out three mills and a smelter; one of the mills to be put up in Highland, the second in Ten Mile, and the third mill, together with the smelter, is to be located at Butte City.

The Mansfield Mining Co. have lately applied in the U. S. Land Office for a patent to their property. It comprises 200 ft. on the Union No. 2 lode, being one-half of No. 2 east and an undivided one-half of No. 4 east from discovery claim.

NEVADA.

Humboldt.

Register, Jan. 18th: The Pioneer mill has had a hard struggle this week to keep its wheels in motion, owing to the large accumulation of ice on the flume and water wheel, but "it still lives."

Pahranaagat.

Austin Reville, Jan. 17th: The Pioneer Foundry of this city has just finished the necessary iron work for the reverberatory 10-stamp mill at Hiko, Pahranaagat, and they will be sent forward to-day or to-morrow.

We are informed by Benj. Evans that shortly before he left Hiko, specimens of silver ore had been brought in there from the Mountain Meadows, about 100 miles southeast, where prospectors had discovered and located a number of ledges. The ore exhibits a large proportion of galena. It is said by the recent discoverers that the mines were located and worked by the Mexicans many years ago, of which the ground bears present evidence in piles of debris and remains of furnaces. Mr. Evans says that the men who brought the specimens to Hiko represent the ledges to be large and numerous.

Reese River.

Reville, Jan. 22d: We were shown this morning the certified result of the working of 18½ tons of sulphuret ore from the Magnolia mine. The ore was reduced at the Maubattan mill, and the pulp assayed at the rate of \$404.53 of silver per ton. After paying mill charges, revenue tax, stamps, etc., the 18½ tons afforded the sum of \$5,518.46 in gold coin. Mr. A. Morse, the agent of the company, arrived here a few months ago. Instead of running counter to Supt. Clark and playing a cross purposes with him, he has from the first seconded his efforts to bring the mines of the company to fruit. The Magnolia had long been regarded as one of the most likely mines of Lander Hill, but the attempt to work it by a board of trustees

seated upon the Atlantic seaboard proved a failure.

Same of 23d: By a person just arrived from Newark district, we have been informed that the mill of the Centenary Co. was at work producing bullion, though it will be closed before long for want of salt, its supply of which can scarcely be replenished before next spring. The Chihnahna and Lincoln mines of the company are being worked steadily, and their appearance is cheering.

Correspondence of the *Enterprise*, Belmont, Jan. 17th: Our large Combination mill is at length completed, and will start its powerful works in two or three days. I have no doubt of its success. We will ship bullion shortly that will astonish the world. I have examined their mine, and find it the best ledge in the State, but not developed as yet. There are a large number of tons of rich ore hoisted daily. I think this will be the busiest camp in the State the coming spring. Canfield is going to start his works and mill very soon. There are a number of good ledges here, but they are in the hands of poor men. We want a custom mill. Should we get a good mill, we will be independent of these rich companies and their labor.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, Jan. 24th: The Reek Point Mill Co. have almost completed a new dam in the place of the one swept away by the late flood in Carson river. In a few days the dam will be finished, and the mill will resume work with both steam and water as a motive power. The Illinois Mill Co. are getting in a supply of ore for reduction and will soon start up. The mill is run by steam. There are a number of idle mills in Dayton and above on the river.

A cave of considerable extent occurred yesterday in the Yellow Jacket mine, south, but no particular damage was done, as the mine at the point where the cave took place was worked out.

Same of 25th: Owing to the great depth of snow upon Cedar Hill, no ore is being brought down from the Sacramento mine. The tests of the ores taken out a month or two since were very satisfactory.

The Empire-Imperial works have resumed operations, having received and put in place their new spur-wheel.

From the office of Wells, Fargo & Co., in this city, during the past week, there were shipped 1,420 lbs. assayed bullion, valued at \$27,121.64.

Trespass, Jan. 25th: In the Ophir, work continues at the shaft as usual. In the Gould & Curry, the usual quantity of ore is being taken from the old station. In the Savage, the connection between the winze and fourth station was made early in the week, the ore at that point being from 19 to 24 ft. in width, and of average quality. In the north mine, fourth station, northwest drift, a vein of ore was cut last Wednesday that was one foot in width. It has been run on, and has widened to 4 ft., with promise of continuity. It is very fair in quality. In the fifth station, middle mine, a body of quartz was cut, and with it a considerable vein of water. The dividend for this month will be \$5, with a handsome amount to carry over. In the Hale & Norcross, the body of ore mentioned in our last, next to the Savage ground, continues to look well, and is of an average width of 18 ft., and will mill \$50 per ton. In drifting west of this body, another vein of fine ore was cut on Thursday, supposed to be the same body—making down from the old winze. In the Imperial, the new machinery is now in working order, and steam was made last night at the Imperial-Empire shaft. This morning active work has commenced in draining the shaft. In the Yellow Jacket, the labor of letting down the pump column continues, and new rods for the upper pump have been substituted for the old ones. At the foot of the winze on the Kentuck line, a drift south to connect with the advancing drift from the 700-ft. level of the Crown Point, has been commenced. About 70 tons of ore are being mined daily, the principal portion of which has been mined from the north shaft. In Kentuck, the usual amount of ore is being taken out. In Crown Point, the station timbers at the 800-ft. level have been cut, and a drift east has been commenced.

Geld Hill News, Jan. 19th: The Bowers and Plato mine is again in full blast. C. C. Stevenson is the superintendent.

Flax.—A farmer in Humboldt county, the past season, sowed on a piece of land measuring twenty rods, eight and a half pounds of flax seed, which yielded 120 pounds of clean seed.

The Mining Academies of Saxony and Hungary.

The subject of establishing a School of Mines on this coast, being at the present time a prominent general topic, and one which will continue to be so for some time to come, we purpose inserting, at length, an excellent article under the above caption, which appeared several years ago in the *Memoirs of the Geological Survey of Great Britain*. The paper was drawn up by Prof. Warrington W. Smyth, the mining geologist connected with that Survey. When completed, some additional remarks or continuation of the same will probably be given to our readers from the pen of a gentleman well acquainted with the subject. We do not think the reader, after the perusal of the present article, will deem that any great accession of knowledge will be obtained by sending any person devoid of a thorough mining and metallurgical education, as a Commissioner to glean information likely to be overlooked by so competent an observer and writer as Professor Smyth. The paper we copy was directly addressed to the inhabitants of Great Britain; but if the reader will mentally substitute the United States for the old country, the remarks will be found just as pertinent as though they were addressed directly to the citizens of the United States:

"Among the various applications of geology to the useful purposes of life, the art of mining most directly needs the application of that science, and requires, for the successful furtherance of its views, the most extended acquaintance with the geological facts observed at different times, and in different places.

Every thinking miner must, indeed, in a certain sense, though perhaps in a very confined sphere, become a geologist; little as the practical coal-viewer or mining agent may be prepared to receive the title:—and he bases his operations, whether relating to the discovery of new mineral treasures, or to the prosecution of those already found, on rules which the experience of years has taught him to lay down; and in proportion to the strength of his judgement, the retentiveness of his memory, and the opportunities of seeing and testing which have been afforded him, will he be likely to carry out advantageously the work on which he is engaged.

Looking at the class of men who, in this kingdom, are intrusted with the direction of collieries and mines, we find them, in general, characterized by a remarkable degree of energy and intelligence; and yet it cannot be denied that, independently of the losses entailed by the uncertainty of mineral veins, large sums are yearly squandered on ill-judged, and sometimes even absurd speculations, which a greater amount of experience, on the part of the proposer, would have taught him to modify or abandon. We cannot be surprised to hear of similar failures, when we consider, first, the comparatively short time over which a single man can extend his experiences; secondly, the great amount of phenomena which must be observed and compared to form a ground-work for practical geology; and, thirdly, the numerous branches of other arts and sciences, some of which should properly precede its study, whilst others, immediately connected with the duties of the mining agent, intervene to distract his attention, and render it difficult for him to attain a great degree of proficiency in any one particular subject.

On the continent of Europe several academies have been founded with the desirable object of supplying to miners a knowledge of geology, and the kindred sciences, and of establishing a storehouse of facts and experience, whence they should be enabled to reap the harvest sown by those who have gone before them, and should set forward on their own career provided with such a stock of knowledge as to obviate the necessity of passing a great portion of their lives in the useless repetition of that which has been done before; and with the view of affording them a facility, by beginning where others have ended—to form new links in the chain of improvement, and thus to carry out the process by which alone, in every pursuit, we can hope to approach perfection.

To argue at length for the advantages of such a system would be here out of place;

no man will deny the justice of the observation of the Roman poet—

"Ego nec studium sine divite vena
Nec rude quid possit video ingulum."

And a suitable direction of the mind, and early exercised acquaintance with established principles, is surely no less necessary to the successful cultivation of the useful arts, than to the ornamental branch of literature.

The most remarkable of these mining colleges are those of Freiberg, in Saxony, and Schemnitz, in Hungary, because both situated in the center of important mining and metallurgical operations, and therefore combining the advantages of general scientific instruction with the practical application of the art. As we account, however, of their plan and working has been laid before the public since the days when the name of the first-mentioned academy resounded throughout Europe, in connection with that of its celebrated Professor, Werner, I believe a short description will prove interesting to the miner as well as the metallurgist and mine-adventurer; and since I had the opportunity of residing at each for some months in the years 1840 and 1842, and of hearing certain courses of lectures, as well as of examining the works of the surrounding districts, the information will apply nearly to the present date.

The want of an academy for educating the miners of Saxony was made apparent by the number of young men who flocked to Freiberg as pupils of Dr. Henckel, and in his house heard lectures on all the necessary subjects; whilst in the neighborhood they were provided with the means of gaining practical experience. On his death, in 1744, students still visited the town; and at length, in 1765, a mining school was founded by Prince Xaver, during the minority of the King, which very soon, under the care of Werner, who was appointed inspector in 1775, attained great celebrity. His perfect acquaintance with the sciences on which he lectured, his activity of mind, and his excellent manner of teaching, caused his classrooms to be frequented by strangers from all quarters. He every year read lectures on the art of mining, mineralogy, and geology, as well as on iron smelting, fossil remains, mineralogical literature, geography, etc.

These subjects have, since his time, been so amplified as to afford sufficient occupation to several Professors, and were distributed in 1840 as follows: General Chemistry; Technical Chemistry; Metallurgy; Mineralogy and Mineralogical exercises; Geology in two courses; Crystallography; Physics (Natural Philosophy); Paleontology; Pure Mathematics; Higher Mathematics; Mining Jurisprudence and Correspondence; Analytical Preparation; Analytical Chemistry; Applied Mathematics; Mining Machinery; General Surveying and Practical Geometry; Art of Mining; Surveying; Drawing, in three divisions; Architecture; Assaying of Metals; French Language.

The institution is placed under the immediate control of the upper board of mines (*Oberbergamt*); the Professors, although forming no regular senate, meet on occasion in conference, where the members of the above board also sometimes take a part. The superintendence of the discipline is intrusted specially to one Professor.

Candidates for admission must produce certificates of healthy constitution, good character, and tolerable proficiency in the usual subjects of school education, and in mathematics. The testimonials are presented between January and June; and the *Oberbergamt* decides upon the candidates who may present themselves for the examination, which takes place in August. Those who are supported by the government have the advantage of attending the lectures gratuitously, and receive certain *stipendia* or scholarships; they are divided into two classes; the first, called the *Beneficiarii*, pass through a course of four years, and become candidates for the royal service; the other is composed of those who enter for places not requiring more than one or two years of study, or who are unable to enter as regular pupils in consequence of a want of vacancies in the corps. Independently of these, are Saxons, who pay their own expenses; and foreigners. Some of the academists, finally, go to the University of Leipzig to study jurisprudence, which is necessary for those who are to be officers in the various mining towns of Saxony. Another part, who have distinguished themselves for intelligence and industry, are sent to travel at the expense of the government, or to visit foreign universities.

Saxons, in good circumstances, and foreigners can attend the academy on production of certificates of good character, and of their stay being duly authorized; they are

*I dare not what either study or untutored genius can accomplish, without rich veins of material.

expected, however, to pay for the courses of lectures as follows: General Chemistry, Analytical Chemistry, Mineralogy, the Higher Mathematics, and Machinery, each \$30* per annum. Geology, Physics, Applied Mathematics, Pure Mathematics, Metallurgy, Technical Chemistry, Architecture, \$20 per annum. Art of Mining (two parts), Elementary Mineralogy, Mining Jurisprudence and Correspondence, Theoretical Surveying, \$15 per annum. Practical Surveying, Assaying and Drawing, according to circumstances.

The students of this class are entirely free from the superintendence of the officers of the academy, and only attend the examinations if they require certificates; their number is usually about twenty, of whom three or four are officers of the Russian Mining Engineers sent by their government to reap the advantages of extended experience, whilst others are from Spain, Brazil, the smaller German States, etc.

The subjects are taught as in our own Universities, by lectures illustrated by figures on the blackboard, by experiments and by the inspection of specimens, according to the nature of the case. One day in the week (Monday) is left without lectures to enable the students to visit the works, or take part in the operations.

The ordinary pupils are expected to keep a fair copy of their notes, and are examined at least every month as well as at the close of the annual course of lectures, and are classified and rewarded according to the result.

On the expiration of the second year, the student determines whether he will attach himself more particularly to the mining or the metallurgical departments; and then pursues a course of study more especially adapted to his end. In the fourth year, practical exercises in both branches form the main feature of the course of education.

The Academic or Mining School, an establishment subordinate to the above, is intended partly to educate youths of a lower class for the situations of under-managers and viewers—partly as a preparatory step to the Academy. The number of scholars is restricted to 40, and they are instructed in arithmetic, geometry, the art of mining, elementary mineralogy, German grammar, and drawing, the whole course being arranged with a view to the combination of practice with a correct knowledge of principles.

A handsome building, in the center of the town, has been erected for the use of the academy; it contains several lecture-rooms, an excellent library, to which the students are liberally admitted: a room appropriated to mining and mechanical models, and extensive and well-arranged collections of mineralogical and geological specimens.

*The Saxon dollar is equal to 3s. sterling.

A CURIOUS MACHINE.—Mr. Norton's marvellous invention for discovering the existence of water on the most arid land, is attracting immense attention in Paris, and experiments are daily made with it in the neighborhood of Paris. The Emperor Napoleon has purchased the machine, and personally superintends the experiments going on in the Park of St. Cloud. The instrument consists of a long iron tube, terminating in a sharp point, which, forced into the ground, has never failed within twenty minutes to bring water to the surface.

Paris Correspondence.

The above mentioned "Machine" is the Avery Tube Well and Pump, which was illustrated in our last issue, and the advertisement of which will be found in another column. It is really a most important and valuable invention.

A PAPER MILL IN THE SIERRAS.—It is said that a paper mill is to be erected on the Truckee river, in which a capital of \$300,000 is to be invested. This point has been selected on account of the pure water which can be obtained there, and for the reason of its proximity to the Pacific Railroad. The immense district of country beyond the Sierras will soon furnish an ample market for such a manufacture. The parties engaged in the enterprise are said to be Eastern capitalists.

STEAM POWER IN HYDRAULIC MINING.—

The *American Journal of Mining*, in noticing the claim put forth that the recent application of steam by Mr. Samuel Fair, of Nevada county, to propelling a water jet for hydraulic mining is something novel, says that such use of steam is not new. The same device has been for some time employed at a placer mine in North Carolina, reference to which was made in the *Journal of Mining* of the 23d of November last.

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.

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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.
Mr. C. T. Hancey is our duly authorized agent for Sacramento County. Nov. 29, 1867.Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1867.
Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

Mr. H. C. Northrop, is our duly authorized agent for Oregon, Washington, Idaho, and Montana. Aug. 17.

OUR NEW YORK AGENCY.—Mr. M. A. LATHROP, formerly of California, is our authorized Agent in New York. Parties in the Eastern States who desire to subscribe for or advertise in the MINING AND SCIENTIFIC PRESS, can address Mr. L., at No. 725 Broadway, for the present. Nov. 26, 1867.

San Francisco:

Saturday Morning, Feb. 1, 1868.

Notices to Correspondents.

AQUARIUS, Sacramento.—The gentleman you refer to as the writer of a series of articles which appeared in 1862 in the *Sacramento Union*, and we believe also in a more condensed form in the *Evening Bulletin*, in reference to the causes of the floods then, subsequently and now devastating the central valley of California, and their mode of prevention, and Prof. Rowlandson, the writer of several articles on metallurgy, mining and geology, in the MINING AND SCIENTIFIC PRESS, is one and the same person. Prof. Rowlandson, at the time of the floods of 1862, then declared most emphatically that the levee system for the reclamation of swamp lands would prove an utter failure; and further that the future security of Sacramento from inundation would, under like circumstances, depend chiefly upon such failure. The present season has shown the perfect soundness of Prof. R.'s conclusion; for, had the levees, erected with the ostensible purpose of securing the swamp lands, which they inclosed, from overflow, withstood the recent floods, Sacramento must again have become submerged. When the Legislature was temporarily domiciled in 1862 in this city, Prof. R. had interviews with the then Governor (Leland Stanford) and several senators and members of the Assembly, with the object of making a survey and preparing plans and a report for the ensuing Legislature, as to the most advisable plan of procedure, the cost of which was estimated would amount to \$15,000. As, however, such an expenditure possessed no room for jobbing, by idle politicians; but on the contrary had a tendency to displace such, and had no view for obtaining any franchise to the injury of the State generally, the object was so coolly received that it was not deemed prudent to press the matter forward. We would like some member, of either House, to move a call for the amount and particulars of the expenditure made of the Swamp Land funds, since the period alluded to; all of which, it is now proven, have been as useless as though the money had been thrown into the Pacific. Ex-Governor Low was most probably in error when he stated that no feasible plan for the prevention of destructive floods and the permanent reclamation of the swamp lands had ever been submitted.

J. D., Pioneer City, Idaho, will have found before this reaches him, that the error of \$13.33 in place of \$1,333 per ton obtained from ore worked at the Miners' Foundry, the produce of the Duncan extension, was rectified in the succeeding week's publication. Before our next issue appears, we will take the opportunity of looking at the 600 pounds of similar sulphurets now in the hands of Messrs. Rogers, Meyer & Co.

F.—A is received, and will be replied to next week.

SILK STATISTICS.—A correspondent of the *Sacramento Union*, of Wednesday last, takes exceptions to an article which appeared in our issue of the 18th ult., in relation to silk culture in this State. The correspondent in question labors under a mistake in supposing the article to have been original in the Press. It was distinctly credited to the *Commercial Herald* of this city, to whose attention we commend the matter.

The Black Rock Mines.

Mr. Hiskey, a millman, who has lately worked some of the ore from the Black Rock mines, complains in a communication to the *Sage Brush*, of our depreciatory remarks with reference to the Black Rock mines, and says: "I have said I believed Black Rock was and would prove the richest district known. I believe I can prove it, and if nothing happens more than I know of at present, I will prove it." We again repeat the hope, already so strongly expressed in our former article, that the Black Rock mines may prove a success. Our depreciatory remarks were founded (and so stated at the time to be) upon a large quantity of specimens, from what are generally reported to be the most promising mines in the Black Rock district. With two exceptions, out of a representation of some twenty mines, we pronounced the specimens, so far as mere judgment could go, totally barren of either gold or silver. Of course if they are fair representations of the mines in question, as claimed, those mines must be as valueless as the specimens. We did not, neither do we now say, that valuable mines may not exist, or may not even now be known in that district; yet we do not believe that either Mr. Hiskey, or any other man, ever found gold or silver in paying quantities in any such specimens as have been submitted to our inspection, unless it was put there by human agency. We should heartily rejoice at being able to chronicle any favorable developments at the Black Rock mines; but we protest against the hawking about the country of volcanic debris (of which the specimens we have seen chiefly consist) as samples of rich ores, with the view, thereby, of deceiving the public into making investments in worthless mining stock.

Since writing the above, we have met with the following paragraph from the *Carson Appeal*:

"We will state what our experience is with regard to the 'black wax' of the Black Rock district. About a year ago the editor of the *Appeal* filled a small box with specimens of ores, etc., from the various localities in this State and sent them as a present to Prof. A. E. Verrill of the Sheffield Scientific Institute, Yale College, and among these specimens was some of this 'black wax.' The Professor's special attention was directed to this strange substance, and he was requested to examine it and give his opinion of what it was. In a letter dated 'New Haven, Conn., March 31st, 1867,' Prof. Verrill says of the 'wax':"

"It contains a little silver, but not near so much as you say it is reported to. It is a sort of clay, containing some chloride of silver, salt, bitumen, etc.—the result of the decomposition of rocks and minerals containing ores of silver, etc. We are now having a more accurate assay made of it, and I will report the result as soon as completed."

"It will be seen by this statement that the 'black wax' does contain a little silver, although not so much as it had been reported to contain. (Prof. Verrill was informed that it had been said to have yielded \$700 and upwards on assay). The result of the second assay has never been reported to us. But the fact that it had been made to show traces of silver is a pretty good proof in support of Isenbeck's statement. At any rate we can vouch for it that Prof. Verrill's report is an entirely candid and disinterested one. Should we get his report of the second assay, we will make it public."

The "black wax" is among the mineral already alluded to in the former portion of this article. It is possible that it may contain a trace of silver, as nearly all the vein rocks of Nevada do; but we do not see in that fact any confirmation of the statements that it will yield \$700 to the ton, or silver in any paying quantity whatever. This, we believe, is the rock upon which the largest expectations were based. We had considered it a volcanic production—its origin may be solfataric. The analysis of Prof. Verrill confirms us in the latter opinion, with regard to its origin, rather than its derivation from the decomposition of rocks upon the surface.

In connection with the above, we quote

the following from the *Sage Brush* of July 18th:

Judge Harrison and A. C. Lengmere returned to Susanville on Thursday of this week from Black Rock. They report the experimenting at the two mills erected there to be quite shorn of any encouraging results. Cheatham had failed to find the color, and was looking for the advent of Hiskey. Salt, of which they are said to be in need, had been procured at Summit Lake, and all the appliances that could be required were at hand, ready for the operator. It seems as though every move to solve the Black Rock enigma clothed it with a still greater mystery. On the evidence adduced in Washoe and Virginia, by working process as well as the declarations of their principal practical mill operators, operations there have been pushed forward, mills constructed and a vast amount of time and capital expended, with apparently no result of a favorable character.

We trust that after this call, Mr. Hiskey will come forward, and make good the opinion expressed by him, as quoted at the outset of this article.

California Academy of Sciences and Yerba Buena Park.

The California Academy of Sciences have made application, through the Board of Supervisors, for the use of a portion of Yerba Buena Park, on which to erect a building suitable for the accommodation of that institution—one in which its museum and library may be located, and which may contain suitable rooms for its regular meetings, an audience room for public lectures, etc.; also for the setting apart of a further portion of the ground for a scientific and botanical garden. Such a disposition of the grounds will not in any way affect their dedication and use for a public park; but, on the contrary, would greatly enhance their value for such a purpose, as the gardens would always be open and free to all, and the building and collections would likewise be free, within certain reasonable restrictions, as to time, etc. The use, simply, and not the fee to the land, is asked for.

A similar project is being carried out in Philadelphia, where an ordinance was passed, on the 24th of October last, to donate the use of Penn Square, one of the largest and best located in that city, to the Philadelphia Academy of Sciences, the Philosophical Society, the Academy of Fine Arts, the Franklin Institute, and others, and before the ordinance passed, a citizen offered to donate \$10,000 towards the erection of buildings. When the matter was under consideration, Councilman Willets said:

"Philadelphia must keep up with the spirit of the age. All over the country our large cities are made attractive, and we must do something of the same kind if we would hope to compete with our neighbors. There was a time when Philadelphia stood preëminent as the first city in the Union, and her people recognized as the most refined of any in the country. Here is an opportunity for the city to secure for herself a prominence above all her neighbors. The erection of magnificent buildings on these squares, and upon the finest street in the world, will attract attention to them, and they will be recognized as the homes of science and art."

We have already stated that favorable action has been taken in Brooklyn, N. Y., for the appropriation of one of the finest squares in that city for a similar purpose. Will San Francisco be behind her sister cities in a matter of this kind? We trust not. Petitions to the Board of Supervisors are being freely signed, asking for favorable action in the matter, in that body.

ASSAY AND CHEMICAL DEPARTMENT OF THE COLLEGE OF CALIFORNIA.—We would call especial attention to the advertisement, in another column, of the chemical and assaying department of the College of California. The laboratory connected with that institution has recently been carefully refitted, under the special charge of Prof. W. B. Rising. Particular attention will hereafter be given to instruction in assaying in all its branches, as well as to qualitative and quantitative analysis.

The Weather and the Rainfall.

Last fall's predictions of the weather-wise for the season thus far advanced, have been most sadly at fault. Instead of the light rains and open weather, prophesied as an offset for the extreme wet weather last year, more rain has fallen the present winter, thus far, than fell up to the same time last winter. For the purpose of ready comparison, we give the record of last year as compared with this up to the present time:

1866-7.		1867-8.	
September.....	.04	September.....	.04
October.....	.01	October.....	.21
November.....	.24	November.....	.84
December.....	15.16	December.....	10.69
January.....	5.16	January.....	9.50
February.....	22.74		23.84
March.....	1.58		
April.....	2.36		

Total for last winter 33.88

The rainfall of the present winter, thus far, at Nevada, according to the record kept at the Yuba Canal Co's office, has been 72.13 inches—over six feet, or three times as much as has fallen in this city, according to Mr. Tennyson's record. This disproportion between the rainfall at San Francisco and the mountains, is so much greater than usual as to almost lead one to think that there must be some mistake in the record. The rainfall of the present year has been unusually continuous from the first setting in of the rain until the first of the present week. Last year, an unusual quantity fell in December, and but a comparatively small amount in January. This year, the quantity for the two months has been nearly equal, and unusually large. The consequence has been the rivers and cañons have had a constant excess of water, which, with the constant fall of rain or snow, has more than usually interfered with the labors of the miner, and kept the roads in such an utterly impassable condition that traveling and transportation have been almost entirely suspended, except by water and railroads.

But if anything can be predicted on present appearances, we are now entering, though rather late, upon the usual pleasant season between the early and the latter rains. The possibilities of a pleasant February, which have been ushered in with such unusually charming weather, are rendered more than probable by the unusual amount of rain which has already fallen.

FEUCHTWANGER'S POPULAR TREATISE ON GEMS.—The third edition of this work, materially enlarged, was issued last summer, the second edition having been exhausted without satisfying the demand. The book embraces over 500 pages, and affords more interesting reading for the general reader, than would naturally be inferred from the title of a special treatise. The author appears to us, from a personal interview, to be a man of much scientific attainment, engaged in the practical avocations of life; a gentleman who has foreseen the want of such a work, and rendered a large amount of valuable information in a popular and practical form. It is embellished with numerous plain and colored plates, illustrating the form and color of minerals and gems to such a degree of minuteness as can only be reached by much care and expense. The truthfulness to nature of these illustrations, alone enhance its value to the ordinary reader. Tables for reference are introduced, prominent among which we observe that termed "The Distinguishing Characteristics of Gems." The book will especially interest prospectors, students, lapidaries, jewelers, mineralogists, metallurgists, and ornamental architects. We shall place it in our advertised list for sale. The Doctor's likeness on the frontispiece will be recognized by friends on the Pacific coast, as a good representation of his animated and genial countenance.

A NEW COUNTY.—A movement is on foot by parties interested, to establish a new county "high up" in the mountains, and christen it with the significant name of Alta. The territory embraced in the proposed new county is to be taken from the upper portions of El Dorado, Placer and Nevada counties. Truckee City has been selected for the county seat.

L. L. LANCASTER, of Vancouver, has invented a hand shingle-splitter that will cut 36,000 in ten hours.—*Ec.*

We invented a shingle machine a year ago, and employed DEWEY & Co., of the MINING AND SCIENTIFIC PRESS, to solicit a patent for us. A Year has elapsed, and no word as yet from our application. What is the matter, friend Dewey?—*Heldsburg Standard.*

Since our neighbor of the *Standard* has, by the above publication, made public the delay attendant upon his application for a patent, and his call for information, we will follow suit and convey the information sought through a similarly public channel. Your application was filed with us Feb. 2d, 1867. Your model was a very rough and hastily constructed one, which we at the time objected to sending to the Patent Office; but at your particular request finally did so. As we expected, after some considerable delay the model was refused, and DEWEY & Co. were informed of the fact by mail. We then directed our agent at Washington to have the model properly constructed or amended, and the application renewed, which was promptly done. At last advice your application was on file at the Patent Office, and awaiting its turn for examination. Our agent there has general instructions to look diligently after all applications through us, and see that there is no unnecessary delay. We presume there has been no delay in your case, which it was in the power of any agency to remove. As soon as the case is decided (which decision we are daily expecting), you will be promptly notified of the result by mail. Perhaps we should add, that much of the delay experienced by all inventors during the past year, has been the fault of the Patent Office, the nature of which has already been fully explained in our columns. The cause of such delay has now, however, been remedied, and inventors may hereafter expect more prompt attention.

DISINFECTION BY STEAM.—The novel attempt was recently made by Commander Chandler, of the U. S. Steamer *Don*, to disinfect that vessel from impregnation with yellow fever, which had broken out on board with great violence. He put into the port of Vera Cruz, where the sick were landed, and preparations for disinfection made by battening down and closely securing the berth-deck and ward-rooms. Hot steam was then turned into them until the thermometer, which was introduced through a small opening, indicated about 200 degrees of temperature. The hatches were then opened, decks dried down, and in two hours more there was no indication of the extreme heat to which those places had been exposed. No cases of fever occurred afterward. There had been twenty-three cases on board and seven men died. Commander Chandler informs the Department that he is fully persuaded that heat eradicated the disease as well as a severe frost could have done. The experiment is a most important one, as it can be resorted to in any climate, or even at sea.

[Communicated.]

EDITORS OF MINING AND SCIENTIFIC PRESS:—I see, by your issue of Jan. 11th., that the writer of a series of articles, upon the formation and distribution of igneous rocks, is disposed to take exceptions to some of my criticisms. I wish no controversy with that gentleman, and am glad to see that, though he remonstrates, he exhibits no ill feeling in doing so. I must still express my regrets however, that if he has spent so much time, as his note indicates, in the study of chemistry, geology and the allied sciences, that he has apparently done it to so little purpose. I understand his challenge perfectly; but my criticisms were not written for the sake of provoking an argument; and I have neither time nor disposition to devote to a discussion that might be endless. *Criticus.*

At last accounts there was about twenty feet of snow at Meadow Lake.

KUSTEL'S NEW BOOK.—The *Evening Bulletin* of this city, in prefacing some quite lengthy extracts from Mr. Kustel's new book, speaks of the work as follows:

"Dewey & Co., publishers of the MINING AND SCIENTIFIC PRESS of this city, have just published a book written by Guido Kustel, mining engineer and metallurgist, the scope of which is best expressed by its somewhat lengthy title—'A Treatise on Concentration of all kinds of Ores; including the Chlorination Process for Gold bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.' Besides the text, there are seven plates and one hundred and twenty diagrams, which illustrate nearly all the improved machinery and processes now employed in gold and silver mining. This is, probably, the most elaborate work on practical mining which has ever been written and published in this country. And that such a treatise should have originated in California is a matter for special congratulation, since its object is to illustrate and develop what has heretofore been the great leading interest of the Pacific slope. Our people have lost millions of money by unskillful mining, and we shall continue to lose millions more every year, until we are content to patiently learn the best methods of extracting the precious metals. Experience will go a great ways; the only evil is that it sometimes cost so much that parties are ruined by it. But when all the helps of science have been obtained, there will still be a broad margin for experiments, many of which will be made with greater certainty of success than now. And when there shall have been a more complete union of mining as a theoretical science, with practical experiments, we may look for the best school of miners in the world. The difficulties presented by 'rebellious' ores are so great, and the prospects which complete success will ensure, are so magnificent that we may expect scientific mining in this country to be carried to the utmost degree of perfection. The book before us is one of the indices of the better times to come. Mining is no longer to be a haphazard business, and the tailings which go down stream will not be worth more than the bars extracted from the same rock. A book so thorough and elaborate ought to be in the hands of every practical miner, even if some precious theories are overturned thereby."

LLOYD'S PATENT ANCHOR.—The Pacific Rolling Mill Company will soon commence the manufacture of Lloyd's new patent anchor. This is a California invention, patented through the MINING AND SCIENTIFIC PRESS PATENT AGENCY, and which is universally admitted by competent judges to possess decided merit over any other anchor. A radical improvement upon the old anchor was made by Trotman, who adjusted a movable fluke so that however the stock might be turned, one fluke would always hold on the ground. In Lloyd's invention the fluke does not move laterally, or at angles with the shank, but both flukes roll over at the same time, so that the anchor cannot be so adjusted that both flukes do not hold at once, thus apparently doubling the holding capacity of the anchor. It is eminently proper that the manufacture of this article should commence where the invention was first brought out. We trust that it may yet form no inconsiderable item in the business of the Pacific Rolling Mills.

A NEW MINISTER TO CHINA.—The appointment and prompt confirmation of J. Ross Browne as Minister to China, *vice* Burlingame, is somewhat unexpected, but far from being unwelcome to the people of the Pacific Coast. Mr. Browne is well known on this coast, and is tolerably well informed with regard to our resources and wants. As it is eminently proper that the China mission should be filled by a resident of the Pacific Coast, we do not know that the Government could have made a better selection. True, Mr. B. is as yet untried in the difficult and devious ways of diplomacy; but he is a man of large cosmopolitan experience, and is probably quite as well acquainted with the needs and nature of our commercial intercourse with the East as any other available man. So far as industry and devotion to the legitimate purpose of his mission will avail, Mr. Browne will leave nothing undone to render himself useful and efficient in building up our growing commerce with the Orient, and in strengthening the feeling of cordiality and confidence which it is so necessary to maintain with the government of China. We trust that Mr. Browne's fondness for traveling will not induce him to turn aside from his legitimate field of labor to follow in the footsteps of his predecessor in seeking for the position of Roving Ambassador for his Celestial Majesty.

HOFFMAN'S WINDOW BLIND AND ANTIDUSTER, for keeping out dust, smoke, etc., from cars and dwellings, has been placed on one of the San José cars for trial. This is a San Francisco invention, patented through the MINING AND SCIENTIFIC PRESS AGENCY. It is said to be especially adapted for railway cars, etc. The window patented is lined on the inside with gutta percha. The slats are of glass; their outer sides being concave, and are fixed on the gutta percha, lapping over each other. Gutta percha tubes are fastened to the window at the top and bottom, and a small stream of water, supplied from a tank on the roof of the carriage, passes through them, moistening the slats. The current of air forced in by the motion of the car, is purified by passing between the moistened slats, and enters the lungs of the passengers pure from all dust, smoke, or other impurities. The inventor has introduced his patent at the East with considerable success, and after experimenting on it here proposes to make arrangements for the manufacture of the new window in the Atlantic States. Application is also about to be made, through this agency, for securing patents in all the principal European countries.

MARKET STREET HOMESTRAK ASSOCIATION.—J. S. LUTY, Secretary. Office, 305 Montgomery street, corner of Pine, San Francisco. 2v15

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trade supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 2v15-3m

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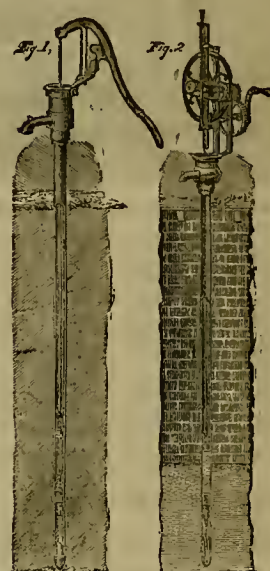
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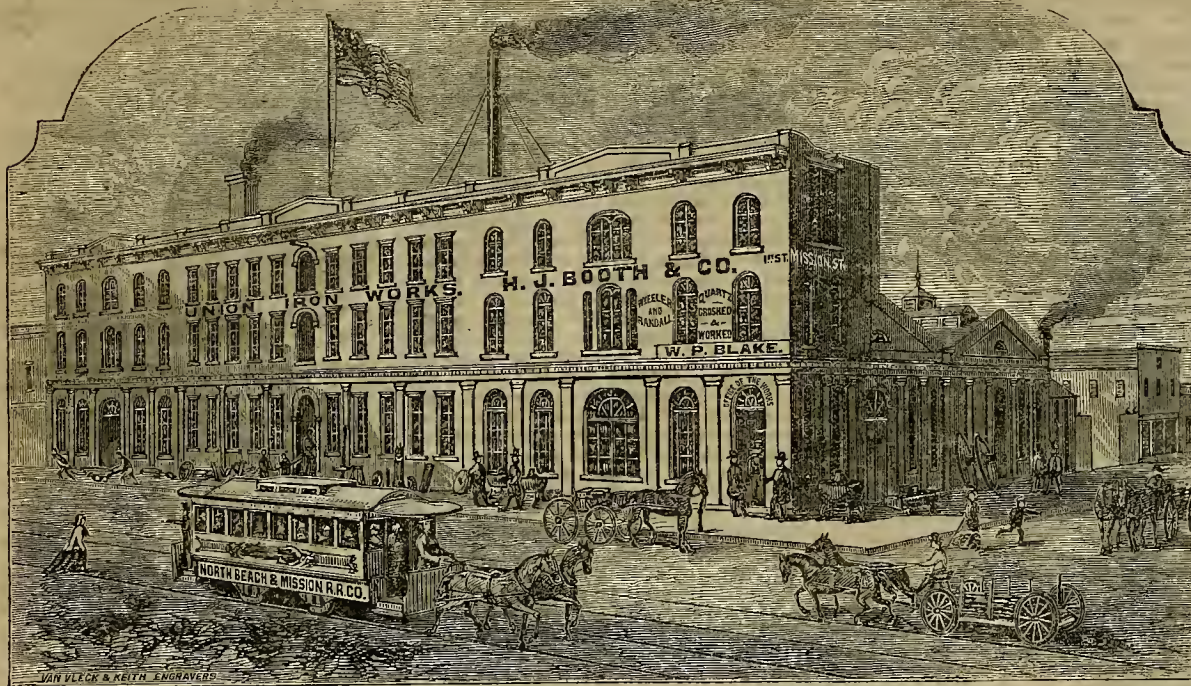
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A CANAL ON FIRE.—In an investigation as to the condition of the rivers Ayre and Calder, which water the great towns of Yorkshire, it was found that the fluid of Bradford Beck, the source of supply to the Bradford canal, was so corrupt from sewerage, that in summer large volumes of inflammable gases were given off; and although it has usually been considered an impossible feat to "set the river Thames on fire," the boys found it practicable to set the canal on fire, the flames rising six feet high, and running along the surface of the water for many yards, enveloping the canal boats, to the great terror of their passengers. That this state of things is not limited to one district was abundantly proved by inquiries at other towns.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letters, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.

Hamburg, by Hamburg mail—2 cents each.

Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.

Lunenburg, by Bremen mail—3 cents each.

Lunenburg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.

Norway, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.

3½ cents per 1½ ounce.

Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—4 cents each.

Italy, by Bremen or Hamburg—5 cents each.

Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 2½ cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mails via Trieste—3 cents each, and 2 cents per 1½ ounce.

PHARMACEUTICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.

Hamburg, by Hamburg mail—1 cent per ounce.

Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.

Lunenburg, by Bremen mail—1½ cent per ounce.

Lunenburg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.

Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.

Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per 1½ ounce.

Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.

Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.

Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail via Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail, by way of Trieste—1½ cent per ounce, and 2 cents per 1½ ounce.

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WHITE PASTE.—The *London Photographic News* states that a good white paste, pure in color and adhesive to all surfaces, may be made as follows: A solution of 2½ ounces of gum arabic in two quarts of warm water is thickened to a paste with wheat flour; to this is added a solution of alum and sugar of lead, 720 grains in each water; the mixture is heated and stirred about to boil, and is then cooled. It may be thinned, if necessary, with the gum solution.

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On the 10th, 18th and 30th of each month that has 31 days. When the 10th, 18th and 30th fall on Sunday, they will leave on Saturday preceding; when the 18th falls on Sunday, they will leave on Monday following. Steamers leaving San Francisco on the 10th touches at Manzanillo. All touch at Acapulco. Departures of 18th or 19th connect with French Transatlantic Co's steamer for St. Nazaire, and English steamer for South America. Departure of 10th is expected to connect with English steamer for Southampton and South America, and Australia, and P. R. R. Co's steamer for Central America.

The following Steamships will be dispatched on dates as given below:

February 10th—GOLDEN AGE... Capt. E. S. Farnsworth, Connecting with HENRY CHAUNCEY, Capt. Gray. February 18th—GOLDEN CITY... Capt. W. F. Lapidge, Connecting with the RISING STAR, Capt. Connor. February 29th—SACRAMENTO... Capt. Wm. H. Parker, Connecting with ARIZONA, Capt. Maury. Cabin passengers berthed through. Baggage checked through—100 pounds allowed each adult. An experienced Surgeon on board. Medicine and attendance free.

These steamers will positively sail at 11 o'clock. Passengers are requested to have their baggage on board before 10 o'clock.

Through Tickets for Liverpool by the Cunard, Inman and National Steamship Lines, can be obtained at the office of the P. M. S. & Co., San Francisco, where may also be obtained orders for passage from Liverpool or Southampton to San Francisco, either via New York or St. Thomas—if desired an amount of £10 to £20 will be advanced with the above tickets. Holders of tickets will be required to identify themselves to the Agents in England.

For Merchandise and Freight for New York and way ports, apply to Messrs. WELLS, FARGO & CO. The Steamship GREAT REPUBLIC, Capt. S. Doane, will be dispatched March 31st, from wharf, corner of First and Brannan streets, for YOKOHAMA and HONOLULU, connecting at Yokohama with the steamer COSTA RICA for HANGHAI.

For passage and all other information, apply at the Pacific Mail Steamship Co's office, corner of Sacramento and Leidesdorff streets.

OLIVER ELDRIDGE, Agent.

INSTRUCTION

Chlorination Process!

Parties wishing to learn the

Working of Sulphurets

BY THE

CHLORINATION PROCESS,

Can have an opportunity of doing so by applying to the undersigned, who are prepared to give practical instruction at reasonable rates. Apply to

JOHN AGRELL, 3v15-3m Jackson, Amador Co., CAL.

Postage.—The postage on the MINING AND SCIENTIFIC PRESS to any portion of the United States is twenty cents per annum, or five cents per quarter, payable in advance at the Post Office delivering the paper. Postage free in the city and county. Foreign postage (with few exceptions) two cents per copy, prepaid. To Bremen and the German States (marked via Bremen and Hamburg line), three cents per copy, prepaid. Single copies at any address in the United States, two cents.

Order Bussey's Combination Burglar and Powder-Proof Keyless Lock!

REASONS WHY.

- 1st. It is the best Combination Lock known.
- 2d. It is impossible to pick it.
- 3d. It can be subjected to over half a million changes, and when run by a burglar, he is no nearer entrance than when he began.
- 4th. It has no key to lose.
- 5th. The more it is used the better it is liked.
- 6th. It has no signs, letters or figures, on its face.
- 7th. It is the simplest to understand.
- 8th. It is impossible to open it without knowing the set.
- 9th. It is least possible to get out of repair, as many one will be convinced on examination.
- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA, San Francisco, May 24, 1866. Recently, two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way meet our fullest approval. They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks. We deem the lock entirely burglar-proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find no difficulty in either opening or closing it, nor in changing its combinations, which may be made almost innumerable. As a California investigation of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it. WM. H. TILLINGHAST, Sub-Manager.

We do hereby certify that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied severely to Vauls and Safes, to entire satisfaction to parties interested. KITTREDGE & LEAVITT, Pioneer Iron Works, cor. Fremont and Market sts. SAN FRANCISCO, May 6, 1867.

I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safes and Vauls in every other respect as good as any other improved combination lock which I am acquainted with. JOHN R. SIMS, Vault Manufacturer, Oregon street, JACKSON, April 27, 1867.

I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons: 1st.—Because it is impossible for either burglar or expert to pick it. 2d.—The lock being constructed without a key-hole, it cannot be blown to pieces by powder. 3d.—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of lock making. R. COSNER.

Attested by J. C. SHIPMAN, County Clerk. JACKSON, April 27, 1867. The undersigned, Treasurer of Amador County, do hereby certify, that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's Safe. I have no fear of any bystander gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe very few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and deem this lock to be all that the inventor claims for it. OTTO WALLHEER.

Attested by J. C. SHIPMAN, County Clerk. CALIFORNIA LOCK ADWARD.—A special premium was awarded Mr. W. C. Bussey for his superior Combination Powder and Burglar Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the Press several months since. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable claims asserted in favor of the lock at that time, have been fully confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates. [Mining and Scientific Press, Sept. 29, 1866.]

They are the only safe lock ever invented. Every State and County treasury vault, and every bank and business place should have one. [Amador Ledger.]

This is a lock in which a series of rotating annular tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair. [Sacramento Union.]

Wo, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar Proof Lock to be the most reliable lock constructed. F. MARST & C. FLETCHER, No. 18 Post street.

REFERENCES: R. COSNER, Sheriff. O. WALTHER, Treasurer. W. JENNINGS. O. H. INGALLS, Supervisors. L. McLAINE.

Any good blacksmith can put this lock on safe doors. Boxed or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be. [See page 39 in Pacific Coast Directory.]

A deaf or blind man can open this lock, when he knows the set and understands the full manipulation, without any expert detecting the combination. 19v14m11-18.1am

Hope Gravel Mining Company.—Location of Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of January, 1868, an assessment (No. 20) of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to David Wilder, Secretary, at the office of the Company, No. 333 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventeenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.

Office, No. 333 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. feb

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the second day of January, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Alfonso...	1	1	\$2.50
C. B. Richard & Sons...	522	1	120.00
Benjamin Fishel...	354	1	2.50
Benjamin Fishel...	279	1	2.50
Louis Levy...	201	6	15.00
Louis Levy...	311	1	2.50
Louis Levy...	335	4	10.00
Isaac Michael...	375	6	15.00
T. Newman...	434	1	2.50
T. Newman...	433	10	25.00
Richard Pluckney...	113	6	15.00
Richard Pluckney...	316	1	2.50
Conrad Stolze...	58	10	25.00
Conrad Stolze...	57	10	25.00
Conrad Stolze...	209	4	10.00
Henry Holm...	398	6	15.00

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

W. M. SIEVERS, Secretary Pro tem.

Office, Nos. 312 and 314 Front street, San Francisco. jan

National Mineral Land Law, Instructions, Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

Mining Notices--Continued.

Chilpaneca Mining Company--District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 315 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, 315 California street, up-stairs, San Francisco. jan25

Die Padre Gold and Silver Mining Company, Alamos, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of January, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 315 California street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. C. McCOMB, Secretary.

Office, corner Broadway and Battery streets. jan1

Hansen Copper Mining Company. Location: Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of January, 1868, an assessment of seventy-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 639 Market street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fourteenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. S. SWEET, Secretary.

Office, 609 Market street, San Francisco. jan15

I. X. L. Gold and Silver Mining Company.—Location of Mines: Silver Mountain District, Alpine County, Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twelfth day of December, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J. H. Will...	not issued	5	\$7.50
Martin C. Miller...	not issued	24	36.00
George Lorenz...	not issued	25	37.50
Mrs. J. H. Oates...	not issued	25	37.50
James Barron...	not issued	27	40.50
Mary C. Bridges...	297	7	10.50
Mary C. Bridges...	313	5	7.50
Thomas Prisk...	325	6	9.00
George Morehouse...	not issued	28	42.00
Georgina Daly...	hal 295	3	4.50
A. B. Sablin...	149	5	7.50
Justin Oates...	not issued	29	43.50

MOSHEIMER'S Pioneer Mining School.

Office, 328 Montgomery Street,

SAN FRANCISCO.

MOSHEIMER'S

NEW ROASTING FURNACE.

Patent applied for.

This Furnace has proven the most successful of any ever built on this Coast. A great number are in use now, and many in course of construction. Their superiority over all other furnaces, is as follows:

1.—The cost of building is only \$300 for a one ton Furnace.

2.—They require less than half a cord of wood per ton of ore.

3.—The ore is roasted to a spongy condition; while in a common reverberatory it takes into globules.

4.—It is a saving of 50 per cent. of labor over any Furnace in use.

A full size working Furnace can be seen at my Metallurgical Works in this city, by applying at my office.

JOS. MOSHEIMER,

328 Montgomery street, San Francisco.

A Sulphuret Mine Wanted.

Any party having for sale a Mine, with Gold-Bearing Sulphurets, of not less than 15 per cent., and which pay at least \$10 per ton, can find a purchaser by addressing, in writing, particulars to

JOS. MOSHEIMER,
56 1/2-Sun
San Francisco.

New Mining Advertisements.

Arizona Consolidated Mining Company, Encina District, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-third day of December, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Z. B. Heywood...	170, 219, 226, 245	38 3/4	\$193.75
W. R. Heywood...	201, 223, 257, 270	10	50.00
Simon Somers...	245	25	125.00
Itall Hanlon...	225	10	50.00
William Hodges...	129, 166, 211	25	125.00
Dickson, John...	233	10	50.00
L. A. Austin...	257	35	175.00
J. B. Moore...	257	10	50.00
A. F. Collins...	236	65	325.00
Mrs. A. M. Pelton...	44	5	25.00
Isaac Sampson...	131, 273	15	75.00
A. Barlow...	247	5	25.00
J. B. Stevens...	287, 288, 289, 290, 291, 292, 293	70	350.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction rooms of Olney & Co., No. 415 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

G. W. BUNNELL, Secretary.

Office, No. 611 Clay street, San Francisco. jan1

Cordillera Gold and Silver Mining Company, Chihuahua, Morelos Mining District, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Clauser, F. J.	40	5	\$5.00
J. H. B. J.	45	5	5.00
Thornton, T. A.	28	45	22.50
Furnham, John	33, 112	40	40.00
Gray, George	270	26	26.00
Dickson, John	147	21	21.00
Dickson, John	147	5	5.00
Harris, Alfred	135	5	5.00
Harris, Alfred	137	5	5.00
Kelly, P. M.	190	3	3.00
Kelly, P. M.	225	2	2.00
Voehres, A. P.	233	6	6.00
Johnson, John	244	5	5.00
Frisky, W. E.	266	10	10.00

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Monday, the seventeenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco, Cal. febl

Favorable to Inventors.—Persons holding new inventions of machinery and important improvements, can have the same illustrated and explained in the Mining and Scientific Press, free of charge, if in our judgment the discovery is one of real merit, and of sufficient interest to our readers to warrant publication.

Names.	No. Certificate.	No. Shares.	Amount.
C. H. Pearce...	210	9	45.00
C. H. Pearce...	hal 213	24	120.00
H. A. J. Henson...	323	3	15.00
H. G. Henson...	257	3	15.00
H. G. Henson...	hal 252	15-16	75.00
H. T. Bjerke...	235	5	25.00
Henry E. Bates...	327	3	15.00
Samuel Michelson...	157	4 1/2	22.50

And in accordance with law, and an order of the Board of Trustees, made on the twelfth day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., auctioneers, 418 Montgomery street, San Francisco, on Thursday, the sixteenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. CROWNSHIELD, Secretary.

Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. jan25

Kearnsage Mining Company, Kearnsage District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 408 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGAID, Secretary.

Office, 408 California street, San Francisco. jan25

Lady Bell Copper Mining Company, Low Divide Mining District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of January, 1868, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to J. K. Johnson, at Crescent City.

Any stock upon which said assessment shall remain unpaid on the tenth (10th) day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

B. P. WILKINS, Secretary.

Office, 618 Market street, San Francisco, Cal. jan11

Mount Tenabo Silver Mining Company.—Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1868, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 426 Montgomery street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twelfth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office 426 Montgomery street, San Francisco.

P. S.—An allowance on the above assessment of three per cent. will be made on all payments prior to the 31st inst. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Nuestra Señora de Guadalupe Silver Mining Company.—Location of Works: Tayoltin, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of January, 1868, an assessment (No. 30) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. PEIFFER, at the office, No. 210 Post street, or to the Treasurer, A. H. WILKINS, at his office, No. 637 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the third day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, Cal. jan11

Oxford Beta Tunnel and Mining Company, Esmeralda District and County, State of Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the eighteenth (18th) day of November, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C. G. Heath...	147	10	\$5.00
C. G. Heath...	148	10	5.00
C. G. Heath...	149	10	5.00
C. G. Heath...	150	10	5.00
C. G. Heath...	151	10	5.00
C. G. Heath...	152	10	5.00
C. G. Heath...	153	10	5.00
C. G. Heath...	154	10	5.00
C. G. Heath...	155	10	5.00
C. G. Heath...	156	10	5.00
C. G. Heath...	157	10	5.00
C. G. Heath...	158	10	5.00
C. G. Heath...	159	10	5.00
C. G. Heath...	160	10	5.00
C. G. Heath...	161	10	5.00
C. G. Heath...	162	10	5.00
C. G. Heath...	163	10	5.00
C. G. Heath...	164	10	5.00
C. G. Heath...	165	10	5.00
C. G. Heath...	166	10	5.00
C. G. Heath...	167	10	5.00
C. G. Heath...	168	10	5.00
C. G. Heath...	169	10	5.00
C. G. Heath...	170	10	5.00
C. G. Heath...	171	10	5.00
C. G. Heath...	172	10	5.00
C. G. Heath...	173	10	5.00
C. G. Heath...	174	10	5.00
C. G. Heath...	175	10	5.00
C. G. Heath...	176	10	5.00
C. G. Heath...	177	10	5.00
C. G. Heath...	178	10	5.00
C. G. Heath...	179	10	5.00
C. G. Heath...	180	10	5.00
C. G. Heath...	181	10	5.00
C. G. Heath...	182	10	5.00
C. G. Heath...	183	10	5.00
C. G. Heath...	184	10	5.00
C. G. Heath...	185	10	5.00
C. G. Heath...	186	10	5.00
C. G. Heath...	187	10	5.00
C. G. Heath...	188	10	5.00
C. G. Heath...	189	10	5.00
C. G. Heath...	190	10	5.00
C. G. Heath...	191	10	5.00
C. G. Heath...	192	10	5.00
C. G. Heath...	193	10	5.00
C. G. Heath...	194	10	5.00
C. G. Heath...	195	10	5.00
C. G. Heath...	196	10	5.00
C. G. Heath...	197	10	5.00
C. G. Heath...	198	10	5.00
C. G. Heath...	199	10	5.00
C. G. Heath...	200	10	5.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-sixth day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Wednesday, the twelfth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

GEO. H. PECK, Secretary.

Office, 212 Clay street, San Francisco. jan25

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 315 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth (16th) day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, 315 California street, up stairs, San Francisco. jan25

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

Rippon Gold and Silver Mining Company.—Location of Works: Silver Mountain Mining District, Alpine County, State of California.

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and so the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp into contact with perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the **PACIFIC FOUNDRY,** San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

Pacific Iron Works.

San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!
PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

-BY-

WM. P. BLAKE,

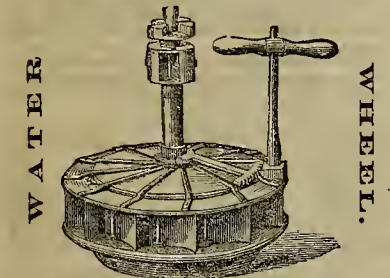
Corner First and Mission streets, or Box 2,077
3v15f SAN FRANCISCO.DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND Placer Miners, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and prices, address

D. J. B. BEERS, San Francisco.

Per Wells, Fargo & Co's Express.

11v15 6m

LEFFEL'S
American Double Turbine

THESE WHEELS, UNEQUALLED AND UNRIVALED IN THE United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REFERENCES.—B. Stocton, Polson; O. Simmons, Oakland, (Mill at Clear Lake); Morgan Coville, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular to

KNAPP & GRANT,

Agents for California.

26v13-1yq

310 Washington street, San Francisco

NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; no goods require no sinking or landing; consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any tastering or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.

By JOSEPH MOORE, President.

21v15 1f

JOSEPH MOORE.

HUNGERFORD'S
Improved Concentrators.

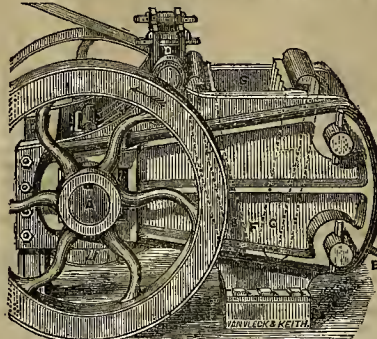
MR. HUNGERFORD, having been absent in the Interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 1f

MORGAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this improved Machine for Breaking or Spalling Quartz, or other Rocks, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600

No. 2—Or 12-inch Crusher, capable of similarly putting through five to six tons per hour..... 850

No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour..... 1,200

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wooden frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, P, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866.

JAMES BRODIE, Esq., San Francisco—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,

R. P. JOHNSON,

Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. For particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desirous of procuring the same, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or CHARLES RADCLIFFE, Express Building, 402 Montgomery street, San Francisco.

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, proreared, some time since, a release of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other materials crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and they will be held responsible in law and in damages.

Several infringing machines are made and offered for in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,

Agents for the Pacific Coast.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel, Manufactory.

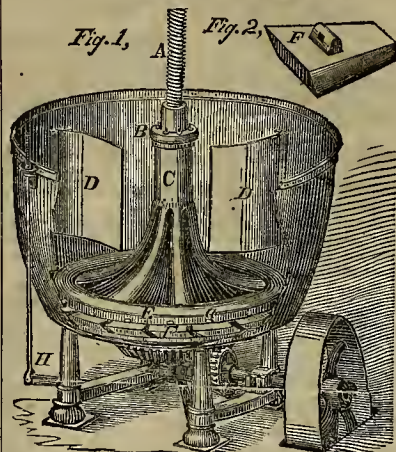
Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools, 319 and 321 Pine street, Between Montgomery and Sansome, San Francisco 10v14 1f

PATTINSON'S
HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

THOMAS PATTINSON

STEWART'S
CELEBRATED HINGED
Grinder and Amalgamator.

The Cheapest and Quickest Pan now used.

It is flat bottomed, loses far less power in throwing the pulp, and circulates the same under the muller to better advantage than any other Pan in use, while the steam-owing to the thinness of the cone, has a more direct effect of heating the pulp. E is the muller plate; F the Grinding Shoe, attached by an adjustable hinge joint in the middle in the same—the bottom wearing down even with the dies. Mr. J. H. STEWART, the inventor, has had ten years of experience in mechanical operations, and may be addressed at San Francisco, or called on at the Miners' Foundry, First street, where his Pan is manufactured, and is to be seen at any time in operation.

14v15-1am1f

A FULL ASSORTMENT OF
Molders' Tools,

Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marvdel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 22v16 3m

A FULL ASSORTMENT OF
MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by
CHAS OTTO & CO.,
312 Bush street.

A FULL ASSORTMENT OF
TWIST DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

Steam Gauges, a general assortment of
Hardware, Cutlery, and
MECHANICS' TOOLS,

By CHAS. OTTO & CO.,
312 Bush street, San Francisco.

TO SPORTSMEN.



THE UNDERSIGNED, HAVING BEEN APPOINTED
Sole Agent for the Pacific Coast for the sale of RO-
PER'S BREECH-LOADING SHOT GUN, which discharges
four shots in two seconds, circulars will be furnished by
applying to or addressing

HENRY EITEL,

111 Second street.

Or Lock Box 1172 P. O., San Francisco. 15v15-2m6m

BELDUKE & CO.,

OF CONCORD, N. H.,

Long employed at the celebrated firm of Downing & Son have opened a manufactory of



Concord Wagons,

Of all descriptions, at No. 820 and 822 Polson street, between Fourth and Fifth streets, San Francisco.
Orders received for Buggies, Expresses, and Light and Heavy Thorough-brace. Carriage Springs made to order, 15v15-1am 6m

ENLARGEMENT
OF THE

American Journal of Mining

Volume III, Commencing March 3.

In consequence of the remarkable success that has attended this Journal, the proprietors feel warranted in increasing its size to

Twenty Pages.

Thus making it the LARGEST and most COMPREHENSIVE Mining Journal on this continent, representing the Gold, Silver, Copper, Iron, Lead, Coal, Slate, Oil, and in fact all the Mineral interests of America, containing beautiful engravings, illustrating the latest improvements in mining, milling and metallurgical machinery.

The Journal has won the encomiums of the press of the entire country and Europe, and numbers among its contributors more eminent scientific men than any other weekly publication in America.

The reports of the markets in stocks, metals, minerals and ores, carefully corrected weekly, are an important feature of the Journal.

Subscriptions: \$4 per year; for six months, \$2.25—in advance; single copies, 10 cents. Specimen copies sent free. Address, WESTERN & COMPANY, Publishers, 37 Park Row, N. Y.

MINING IN INYO COUNTY.—We clip the following extract from a letter written to the Territorial Enterprise by Dr. James Delevan, from Cerro Gordo Mining District, Inyo County, under date of Dec. 20th: The Inyo chain of mountains contains a great amount of mineral for a distance of 100 miles, as also the Sierra Nevada mountains on the west side of Owens Valley, at intervals, for a long distance. For several years back there have been numerous attempts at mining in this region, but for want of proper management, the parties undertaking these enterprises have met with little success. However, the time is not far distant when this will be the most busy mining region in the known world. The mines vary in kind and character in different localities. Some are gold mines, some mostly silver and copper, and others lead. On the east side of the Inyo mountains is a large saline valley, the salt from which will be of immense value for the working of the silver ores of the adjacent mining districts. Mexican miners are taking out considerable gold at the Coso mines, and there are reports that some of them have discovered very rich placer mines, said to be some 50 miles below there. It is reported here that as high as \$100 to the pan has been obtained in these newly discovered diggings. But the Indians are very hostile, and drove the men out of the country who found the diggings. Some of the men at Lone Pine are about to go down there prepared to work the placers, notwithstanding Indians. Many Mexicans have left the Cerro Gordo mines to go to these new Coso mines. In Cerro Gordo district not much mining will be done this winter. Now is the best time for purchasing interests in the mines, as holders of claims, as a general rule, have little or no money, and no purchasers have yet visited the district.

PLUMAS COUNTY MINES.—We condense the following from the Spanish Ranch correspondent of the Quincy Union of January 11th: Ditches and flumes have suffered, likewise dams and hydraulic pipes by snow-slides, land-slides and little avalanches. Several of Jacks Co's flumes have been prostrated and their ditches broken in several places. The new ditch of Mr. Metcalf has suffered badly. Jenkins & Co., have only been compelled to lay over but two days, and have struck in their tunnel some very rich dirt. John Colman, on the Blue Lead, has some excellent prospects on the head of Quien Sahe Ravine. O'Brian & Garrett have bought out Newt. Evans, at New Boston, and are fixing up their claims for winter drifting. The miners in Silver Creek District are doing well. Sanders & Co., on Grub Flat Ravine, are doing tolerably well. Hamp Brown & Bro., Morris Smith & Bro., and all the balance of the boys on and around Badger Hill, Gopher Hill, Curtis' Point, etc., are doing remarkably well. John Ball, of Butterfly Valley, has got into his new diggings, and is getting good pay, considering short days and high water. J. Rogers is likewise doing well in Michigan Ravine. Tommy Taylor and John Radley are making money on Bradley's Point, near Grasshopper Valley.

HOW MUSKRATS SWIM UNDER THE ICE.—Muskrats have a curious method of traveling long distances under the ice. In their winter excursions to their feeding grounds, which are frequently at great distances from their abodes, they take in breath at the start, and stay under the water as long as they can. They then rise to the ice and breathe out the air in their lungs, which remains in bubbles against the lower surface of the ice. They wait till this air recovers oxygen from the water and ice, and then take it again, and go till the operation has to be repeated. In this way they can travel almost any distance and live any length of time under the ice. The hunter sometimes takes advantage of this habit of the muskrat in the following manner: When the marshes and ponds where the muskrats abound are first frozen over, and the ice is thin and clear, on striking into their houses with his hatchet for the purpose of setting their traps, he frequently sees a whole family plunge into the water and swim away under the ice. Following one of them for some distance, he sees him come up to renew his breath in the manner above described. After the animal has breathed against the ice, and before he has time to take his hubble in again, the hunter strikes with his hatchet directly over him, and drives him away from his breath. In this case he drowns in swimming a few rods, and the hunter, cutting a hole in the ice, takes him out. Mink, otter and beaver travel under the ice in the same way, and hunters have frequently told me of taking otter in the manner I have described when these animals visit the houses of the muskrat for prey.

TO CUT GLASS.—Broken glass may be utilized, and broken bottles be turned to useful jars, by a simple means of cutting glass, which consists in first scratching it with a diamond or file on the curved or straight line to be cut, and then tracing the line with an ignited pencil, made as follows: One-eighth of an ounce of gum tragacanth, dissolved in sufficient water to form a thick paste, is mixed with a solution of one-fourth of an ounce of powdered gum benzoin, in the least possible quantity of strong alcohol; to the mixture is added enough powdered beechwood charcoal, to form a doughy mass; this is rolled into little pencils, about four inches long, and left to dry. Such a pencil will, on being ignited, burn to a fine point until it is entirely consumed. As contact with the glass tends to check combustion, it is essential to withdraw the ignited pencil every few seconds, and hasten its burning by brisk blowing.

SAW MADE OF BONE.—The Maoris or natives of New Zealand are a race far in advance of most of those found in the Polynesian Islands. In working wood and bone they evince no little skill; their carvings being very elaborate and tasteful. In making instruments for various uses, they rise far above the aborigines of any part of the American continent. A saw, for instance, was an article unknown among the aborigines of America, yet such an instrument was made of bone by the natives of New Zealand. It was those Maoris who withstood the English troops so long and so valiantly in the late "New Zealand war."

A PECULIAR COAL.—In Brazil, Clay Co., Indiana, there is found a species of coal which in appearance and gravity resembles charcoal, having even the woody fiber of the latter. So valuable is it for smelting purposes that one furnace in St. Louis is using five car loads a day, and its existence needs only to be known to increase the demand from other establishments indefinitely. In the same neighborhood is also found an abundance of native iron ore of a superior quality, and a number of ironmen from Ohio and Pennsylvania have lately been investing heavily in real estate, and the erection of mills and furnaces in this section.

PHOTOGRAPHING CHILDREN.—Mr. H. J. Fellows gives in the *Philadelphia Photographer* a simple and effective remedy for the difficulty of obtaining sufficient time upon children's pictures. He heats the developer. To do this he turns up the edge of a quarter metal plate so that it will hold just sufficient for one development, and then heats it over a gas flame. By this means he has frequently obtained a picture in ten seconds. It may perhaps lack softness and depth, but what can one expect from a child who will not sit still.

SIXTH INDUSTRIAL EXHIBITION UNDER THE AUSPICES OF THE MECHANICS' INSTITUTE, SAN FRANCISCO.

The undersigned, acting under authority from the Mechanics' Institute of the City of San Francisco, take great pleasure in announcing to the public that they have resolved upon holding an Industrial Exhibition in the month of August, 1893, on a much larger scale than was ever before attempted on this coast; and they make this early announcement of their intention, that all who may desire to participate shall have ample time for preparation.

A programme, embracing rules and regulations for the government of participants, with a list of Premiums to be awarded, etc., is receiving such earnest and careful attention as the importance of the enterprise demands and in due season the same will be made public by circulars widely distributed, and by advertisements in the leading journals of this coast.

Executive Committee:

OEO. K. GLUYAS, P. J. O'CONNOR,
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To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE IN MINING AND DOING BUSINESS CONNECTED WITH MINING OPERATIONS, OFFERS HIS SERVICES TO PARTIES WISHING TO PURCHASE MINES, TO EXAMINE AND REPORT UPON THE SAME, TO BUY, REPORT UPON THE FILES OF ANY MINE OFFERED FOR SALE, AND TO TRANSACT ANY BUSINESS CONNECTED WITH MINING OPERATIONS IN THIS DISTRICT. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address,
Lone Pine, Inyo Co., Cal.
JAMES DELAVAN,
4v16f

Mechanical Drawings.

Persons wishing Mechanical Drawings can obtain the services of competent draughtsmen, by applying to this office

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:
On Orders not exceeding \$25 10 cents.
Over \$25 and not exceeding \$50 25 cents.
No fractions of cents to be introduced in an order.
United States Treasury Notes, or National Bank Notes only received or paid.
To send over \$50, additional Orders must be obtained.
Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out:
No. Amount Date,, 1893

MONEY ORDER.

Required for the sum of \$.... Payable at
State of Payable to Residing at
State of Sent by
Residing at State of

ENTERED IN REGISTER: Postmaster.
Names of parties and places, and the sums, to be written in the plainest possible manner.

As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean, and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1897.

CALIFORNIA.

Office.	County.	Office.	County.
Auburn.....	Placer.	Napa City.....	Napa.
Bonanza.....	Solano.	Nevada City.....	Nevada.
Campbellville.....	Yuba.	Oakland.....	Alameda.
Chico.....	Butte.	Oroville.....	Butte.
Columbia.....	Fresno.	Petaluma.....	Sonoma.
Colusa.....	Colusa.	Placerville.....	El Dorado.
Downsville.....	Sierra.	Red Bluff.....	Tehama.
Dutch Flat.....	Placer.	Sacramento.....	Sacramento.
Eureka.....	Humboldt.	San Rafael.....	Marin.
Folsom City.....	Sacramento.	San Francisco.....	San Francisco.
Forest Hill.....	Placer.	Santa Cruz.....	Santa Cruz.
Georgetown.....	El Dorado.	San Jose.....	Santa Clara.
Gibsonville.....	Sierra.	Santa Rosa.....	Sonoma.
Gilroy.....	Santa Clara.	Shasta.....	Shasta.
Grass Valley.....	Nevada.	Sonoma.....	Tuolumne.
Headlandsburg.....	Sonoma.	Stockton.....	San Joaquin.
Idaho Valley.....	San Luis Obispo.	Suisun City.....	Solano.
Jackson.....	Amador.	Susana.....	Lassen.
La Porte.....	Plumas.	Vacaville.....	Solano.
Los Angeles.....	Los Angeles.	Yaleville.....	Solano.
Mariposa.....	Mariposa.	Yuba City.....	Yuba.
Markleville.....	Alpine.	Watsonville.....	Santa Cruz.
Marysville.....	Yuba.	Weaverville.....	Trinity.
Martinez.....	Contra Costa.	Wilmington.....	Los Angeles.
Mokelumne Hill.....	Calaveras.	Yreka.....	Siskiyou.
Monterey.....	Monterey.		

NEVADA.

Office.	County.	Office.	County.
Virginia City.....	Storey.	Austin.....	Lander.
Carson.....	Ormsby.	Aurora.....	Esmeralda.

OREGON.

Office.	County.	Office.	County.
Albany.....	Linn.	La Grande.....	Union.
Canyon City.....	Grant.	Oregon City.....	Clackamas.
Corvallis.....	Benton.	Portland.....	Multnomah.
Dallas.....	Polk.	Roseburg.....	Douglas.
Eugene City.....	Lane.	Salem.....	Marion.
Jacksonville.....	Jackson.	The Dalles.....	Wasco.
Lafayette.....	Yam Hill.	Umatilla.....	Umatilla.

IDAHIO TERRITORY.

Office.	County.	Office.	County.
Boise City.....	Ada.	Ruby City.....	Owyhee.
Idaho City.....	Boise.	Lewiston.....	Ney Perce.

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena.....	Gold.	Virginia City.....	Madison.

WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia.....	Thurston.	Vancouver.....	Clark.
Steilacoom City.....	Pierce.	Walla-Walla.....	Walla-Walla.

SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;
With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

By WM. BARSTOW, M. D.

Published by A. Roman & Co., San Francisco.

For sale at this Office.—Price, One Dollar.

With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 2v15f

Pacific Chemical Works.

**Aqua Ammonia,
Acetic Acid,
Acids Chemically Pure,
Nitrate of Silver,
Cyanide of Potassium,
AND CHEMICALS OF ALL KINDS.**

Manufactured by the PACIFIC CHEMICAL WORKS,

FALKENAU & HANKS,

Laboratory, Sixteenth street, near Folsom. Office, 619
Montgomery street, San Francisco. 2v15f

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi stoves, of the latest improved pattern, for vessels of all classes. Also, Ship Plumbing done.

8v13-17 Stove Store, No. 125 Clay street, below Davis.
M. PRAG.

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.
PARTIES WISHING TO PURCHASE WILL SAVE 50 per cent by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco. 2v15-3m

HAYWARD & COLEMAN,

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS!

CONSISTING OF

KEROSENE, LARD, SPEARM, ELEPHANT, POLAR, TANNERS', NEATSFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO,—

SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of MILL OWNERS and ENGINEERS to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.

A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!

An elegant and complete assortment on hand. 19v13-3m 414 Front street, San Francisco.

WE ARE NOW OFFERING OUR IMMENSE STOCK

—OF—

Fine Custom Made Clothing

—AND—

Gents' Furnishing Goods

AT PRICES THAT DEFY COMPETITION.

Our Stock of Clothing Consists of

ALL THE LATEST STYLES

BOTH OF MATERIAL AND FINISH.

A Large Assortment of

Trunks, Valises, Carpet Bags, Blankets, Etc.,

AT EXTREMELY LOW PRICES.

J. R. MEAD & CO.,

8v10 Cor. of Washington and Sansome streets

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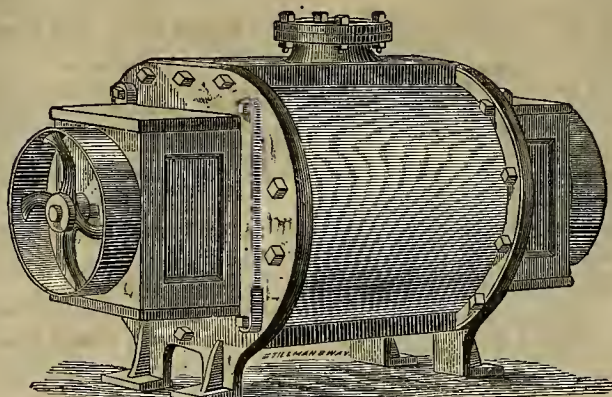
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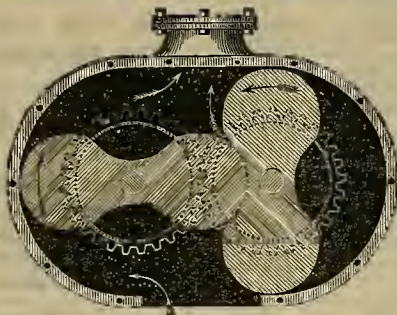
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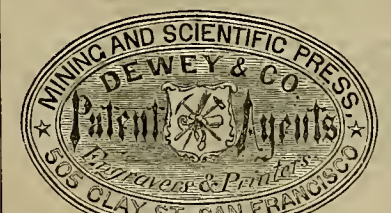
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SAN FRANCISCO, SATURDAY, FEBRUARY 8, 1868.

{ VOLUME XVI.
Number 6.

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Portable Fire Extinguisher.—Illustrated. Retaining and Lacing. The Mining Academies of Saxony and Hungary. A Good Deal "Less than no Time." Forests and Rain. Central Pacific Railroad. The Freiberg Barrel Process for the Reduction of Gold and Silver Ores—No. 11. Salt Spring Valley and the Adjacent Region in Calaveras County. A Steam Man—Extraordinary Invention. Utilization of Woolen Rags. Petroleum Exports. New Steam Engine. **MECHANICAL MISCELLANY.**—Transferring Power: Paraffine as a Lubricator for Heated Machinery; Artificial Grindstones; Making Hinges.

VETO OF THE YOSEMITE BILL.—Governor Haight has been fortunate in his first subject for the exercise of the veto power. He has suited everybody except the unfortunate squatters who lose their land. While all sympathize with these settlers, all at the same time admit that such mere occupation of public lands does not, and should not, deprive the government of the right to dispose of them for the public benefit. It did so dispose of this Valley, by a grant to the State of California, upon the express conditions that it should be held for public use, and should be inalienable for all time. The State accepted the grant upon these conditions; and having so accepted it, she is bound to comply with them. As the Governor suggests, whatever rights the settlers might have had, can be satisfied by paying for such improvements as they had at the date of the Act of Congress making the grant, or by a lease at a nominal rent for a term of years. Leases not exceeding ten years may be granted for portions of the premises, such being allowed by the terms of the Act.

NEW STEAM ENGINE.—A steam engine of quite a novel construction is now in operation at the brass foundry of Messrs. Weed & Gallagher, on Fremont street, in this city, which is well deserving the attention of mechanics and engineers. The mode of construction and appearance of this engine is quite as much of an innovation on any plan heretofore employed as the Hick's engine, and it is equally as compact and simple. The entire engine, which is oscillating in its construction, consists of but five parts. No packing whatever is required. We are assured by the builder that its cost will be only about one-third that of a stationary engine of the same capacity, while the amount of machine work about it is not over one-fifth. It can be used as a steam engine, a hydrostatic engine, an air or force pump, and as a water meter. The inventor is Mr. H. B. Martin, a well known and skillful mechanic of this city, who is also the patentee. We shall endeavor to give a more extended and probably an illustrated description of this novel piece of mechanism at an early day.

DR. SWARTZ recommends the use of magnesite, a natural carbonate of magnesia, for obtaining the carbonic acid required in soda water.

Portable Fire Extinguisher.

The dangers of fire breaking out, especially at night, are always greatly increased by the confusion usually consequent upon the lack of instant preparation to meet that emergency; and what might easily have been overcome in a few minutes, by a little prudent foresight and preparation, often becomes a dangerous and destructive conflagration. Complete readiness, and the utmost celerity and promptness, are the requisites for such an emergency. "The Portable Fire Extinguisher" just meets the exigencies of the case. It is simple, inexpensive, *always ready*, prompt, and will do more execution than twenty or thirty times the amount of water which can be placed in the same space. As we presume but few of our readers have ever seen even the outside of one of these machines, and a still less number have made themselves acquainted with its interior construction and manner of operation, we have appended hereto an illustrated description of the same.

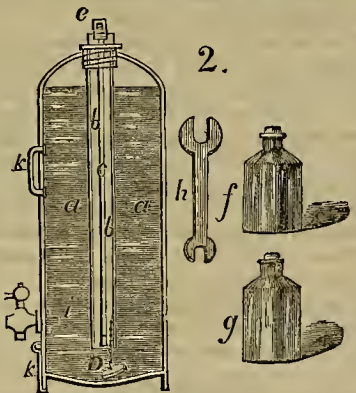
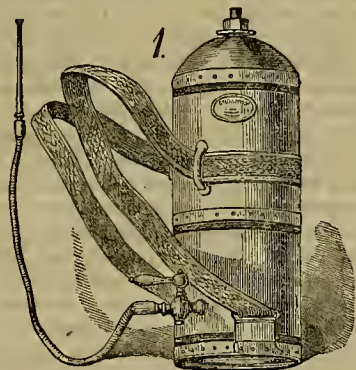


Fig. 1 shows the extinguisher ready for use.

Fig. 2 shows a sectional view of the extinguisher, which will be quite well understood by reference to the following directions, to be observed in preparing it for use:

The space *a* is filled with water, the tube *b* is filled with the contents of canister *f*, and the contents of canister *g* is put into the water *a*. By applying the wrench *h* on the screw *c*, it forces down the rod *c* upon the plug *d*, the contents of the tube *b* fall into the extinguisher, and the two compounds come together and form the extinguishing liquid, which being a non-supporter of combustion, is of a much more

powerful nature than twenty times its equivalent of water. Thus, a No. 2 Extinguisher contains eight gallons of liquid, equal to 160 gallons of a more efficacious material for extinguishing fires than water alone, which will project itself with its own power to a distance of forty feet, by the mere turning of the tap, which puts it in full and complete action.

The contents of canister *f*, which are placed in the tube *b*, consist of bi-carbonate of soda. The contents of canister *g*, which are dissolved in the water contained in the space *a*, consist of tartaric acid. When the carbonate of soda is dropped into the water by the above appliances, a large amount of carbonic acid gas is developed, which, by turning the cap to which the hose is attached, in Fig. 1, is allowed to escape with the water, and under such a pressure as is sufficient to project the stream to the distance named.



Fig. 3.

Fig. 3 represents the machine placed in position, upon the back of the operator.

The numerous advantages derivable from the use of this extinguisher, have already been given; but perhaps the most important one is the comparative absence of confusion on the breaking out of a fire, from the occupants of a house knowing precisely what to do. There are no two or three things thought of, and precious time lost in deciding which to do—and finally and almost invariably doing just the worst thing that could be done.

Of course these extinguishers are useful only at the first outbreak of a fire. They are chiefly useful in large public buildings, hotels, warehouses, steamboats, etc. Even in populous neighborhoods, two or three extinguishers placed at convenient distances might often prevent serious conflagrations in such neighborhoods by utterly extinguishing the fire, or keeping it somewhat in subjection until more powerful apparatus could be brought to bear.

Several public exhibitions of the efficiency of this extinguisher have been made in this State—one in this city and one in Sacramento. We were present at the trial in the latter city, which took place at the Fair grounds, at the time of holding the last State Fair. Two trials were made on that

occasion. Two small wooden structures were erected and filled with dry combustibles. Two machines were brought to bear upon it when the signal was given by the Chief of the Fire Department. The fire was quickly extinguished. A more thorough test was made with the next one, as the fire was permitted to completely envelop the building inside and out, so that its heat drove the bystanders quite a distance from the edifice. When the word was given, probably not one of all those present, except Mr. Levy himself, even after what they had just seen, thought it possible for such a fire to be put out with such an apparently diminutive apparatus. The thing was accomplished, however, and the result received with the most prolonged and enthusiastic cheering.

We have before us a pamphlet of nearly fifty pages containing a large mass of testimonials from proprietors of hotels, public buildings, etc., from all the principal cities in the Atlantic States and Europe. In this State it has been introduced by the Central Pacific Railroad Co. along their line; by the San Francisco & Pacific Sugar Refinery, the Cosmopolitan Hotel, the What Cheer House, Thos. H. Selby & Co's Shot Works, Cutting & Co's Pickle Factory, etc., in this city; by the Pioneer Flour Mill, Golden Eagle Hotel, etc., in Sacramento. Insurance companies would do well to encourage the general introduction of this apparatus, by making a small discrimination in the policies of all parties who keep this extinguisher on their premises.

The invention is now in the hands of a large incorporated company in New York city. Mr. Edward L. Levy, brother of the inventor, is the agent of the company for the Pacific Coast. He may be found at 117 Sutter street, Lick House Block. See his advertisement on monthly cover.

PERSONAL—MACHINERY FOR THE MONTANA MINES.—Mr. P. M. Randall, well known in connection with the Wheeler & Randall pan, leaves for the East on the steamer of Monday. Mr. Randall goes to St. Louis to superintend the getting up of a heavy plant of quartz machinery for the gold mines of Montana. We understand that Prof. Swallow, State Geologist of Missouri, has recently visited those mines, in the interest of certain St. Louis capitalists, for whom he has made extensive purchases and locations, which will require the employment of about 200 stamps, distributed among several localities. Before deciding upon the character of the machinery to be erected, a correspondence was opened with Messrs. Wheeler & Randall, with the view of profiting, as far as possible, from California experience in such machinery, the result of which has been the proposed visit of Mr. R. The machinery involved will call for about forty of the Wheeler & Randall pans, with their complement of concentrators and settlers—all of which will be gotten up at St. Louis and shipped by steam to Fort Benton, on the headwaters of the Missouri, which point is but a short distance from the mines, and about 3,200 miles distant from St. Louis, measuring by the river.

Communications.

In this DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER ELEVEN.

GENERAL COMPARISONS DRAWN OF THE LOSSES OF BULLION SUSTAINED BY DIFFERENT METHODS.

As \$15 per ton appears to be about the average value of the losses sustained on account of unextracted bullion, whether Augustin's, Ziervogel's, or the barrel process is employed, it is apparent that on an \$80 ore no considerable, if any advantage, would be obtained by adopting either of these methods; as even by them the loss on this account would amount to not less than twenty-five per cent. If to this is added a further loss of ten per cent. for hullion that is floated off from the batteries, an aggregate loss of 35 per cent. will accrue, or the equivalent of the losses which, it is stated, are now sustained in Washoe by treating the Comstock ores by the pan mode of amalgamation. It would be very desirable to know, what has never yet been explained, whether these losses, on account of non-extraction, are proportionate with the amount of silver and gold present in the ore treated, or consist more of the former (as I suspect is the case) than the latter metal.* The introduction, parenthetically, of the immediately preceding observation has slightly displaced an explanation which I had intended to give in its proper position, viz: that the losses above alluded to as sustained in consequence of the light matter which is floated off after leaving the batteries, when collected is technically denominated slimes, amounting to ten per cent. in value of the ore pulverized, is based on the statements made in the two last reports of the Gould & Curry Company, to which allusion, with an allied object, will be made hereafter.

From the immediately preceding observations, it will be apparent that little advantage can be anticipated by the adoption of any of the German modes that have been so much referred to, so far as obtaining a reduction in the amount of losses sustained on account of unextracted bullion; or, at all events, so far as ores are concerned of no greater value than \$60 per ton,—and less,—even though we put aside from consideration the fact that neither Augustin nor Ziervogel's method, when used alone, is calculated to extract, at the same time, the gold present in company with the silver. Until I had carefully and very minutely examined the whole subject, I had no conception that the losses sustained in all the modes which have chiefly been treated upon, were so large as above noticed; which estimate of losses, however, I believe may be considered as an extreme one. In order, therefore, to avoid as much as possible any estimate calculated to lead to erroneous impressions, maximum in place of minimum examples have been adopted for comparison.

The great distinction between the pan mode of reduction and the methods which have already been noticed, is this, viz: It has been found that the losses sustained by the former mode of procedure bear a constant ratio with the value of the hullion in the ore to be reduced, which, in the absence of actual knowledge on the subject, I will assume to be 25 per cent. (10 per cent. being allowed for loss by slimes); this, on \$100 ore, would amount to \$25 per ton;

whereas, by the other three modes principally noticed, the loss would only amount to \$15—thus giving 10 per cent. against the pan mode. It might be contended, that by the employment of any of the Freiberg methods to reduce a \$60 ore, the losses sustained would probably fall something below \$15. This most probably would be the case, but not to such an amount as would suffice to pay the difference in the cost attendant on the various methods so compared with the pan mode. This close approximation, however, of all the modes noticed, of the costs and losses attendant on the reduction of ores containing the precious metals cease, when the value of the ore, either in the unprepared or condensed condition, does not exceed \$60, and probably when ores fall much below, say \$30, the economical advantage most probably is in favor of the pan mode. The great point of divergence, as regards economy between the systems compared, I have, for the reasons given, assumed to be, when ores or mattes, or concentrated ores, run from \$50 to \$60 in value; above these amounts, the barrel and other methods become the most effective and economical. No more practical proof need be given of the truth of what has just been asserted, than by referring to some of the annual reports of the

GOULD AND CURRY COMPANY.

Several years have elapsed since, in one of the reports made by the Gould & Curry Company, it was stated that it was found more profitable to ship rich ores to England than to reduce them at their own mill, on account of the losses sustained in consequence of the great amount of hullion not reduced, amounting in fact to a large portion of the value of the ore. To the best of my recollection, at the time this statement was made, the so called first class ores alluded to were valued at about \$600 per ton. The charges for land and ocean carriage by steamer, insurance, bags, commissions, interest, and other incidentals, could not amount to less than \$150, or more probably \$200 per ton. Under these circumstances, it is not an unfair inference to suppose that the percentage of losses sustained by high grade ores at the Gould & Curry mill, at that time averaged at least from 25 up to 50 per cent.—most probably the latter. Whether any great advance has been made in respect to the treatment of first class or rich ores, since the period just alluded to, is problematical; for in the report of the proceedings of this company for the past year, an item appears stating that nearly five tons of first class ore were crushed at J. H. Dall's mill, which yielded \$511.25 per ton; the charge for which is set down at \$50 per ton;—thus practically admitting, in this instance, that the method practiced at that mill (I am informed that it is the Freiberg barrel mode) is more efficient by at least \$35 per ton, as compared with the pan mode employed at the Gould & Curry mill. No judgment, however, can be arrived at as to the extent of the efficiency of the method employed at Dall's mill, as no account of the assay of the ore prior to reduction is given; respecting this the general stockholders, as well as the world, are kept in the dark. It would be interesting to know what that assay was, and what was the mode employed; because, if the whole of the hullion in the ore was beneficiated (for the report is worded so as to lead the casual reader to infer this), Capt. Dall has succeeded in bringing into practical operation the grand metallurgic desideratum so long and so loudly clamored for by expectant Comstock and other Washoe stockholders. Whatever may be the true hearings of this case, the fact is clear, from the example given, that the pan method is esteemed wasteful and extravagant, even by its greatest patronizers, when applied to the reduction of high-grade ores. If the method employed by Captain Dall in the case last instanced was as perfect and economical as the report of the Gould & Curry is calculated to lead the reader to infer, no very much greater improvement is required than to dress \$50 and \$60 ores up to \$500 and \$600, which I pledge myself can be done for \$1 per ton, when it will easily be seen that, even at the lower estimate, it would only cost \$60 to win \$500, whereas by the ordinary pan mode only \$250 of bullion would be returned; on reducing an equal amount (or ten tons) at a cost of \$120, at the rate of \$12 per ton, leaving only \$130 net gain; whilst the gross gain by the other mode would be \$500 which minus \$60 for expenses, would form a nett advantage of \$310 over and above that obtained by employing the pan mode, as it is now done. I suspect, however, that something like \$90 per ton remained unextracted in the first-class ore of the Gould & Curry Co. above alluded to. If the loss was considerably less, the heads of the President, Trustees,

Superintendents, etc., with whom are entrusted the interests of the stockholders, must be obtuse indeed if they cannot at once see how obviously a change of system would be to the pecuniary advantage of the company.

Another circumstance connected with the two last reports of the Gould & Curry Co. is deserving of attention, not only by those interested in silver mining, but by gold quartz miners also. Those who have perused the earlier papers of this series, will scarcely need be reminded of the remarks made respecting the losses sustained, owing to the hullion which is floated away in company with other finely divided and light matters, which, when settled, is technically known under the appropriate denomination of slime. It was also then stated that I had invariably found that such slimes, when obtained from gold quartz leads, contained the metal silver in great preponderance over gold. Such slimes have now been saved for some time, according to the reports alluded to, at the Gould & Curry mine, amounting, on the average, to ten per cent. of the ore crushed.

In the report for 1867, the superintendent states that "only 606 tons of slime were worked during the year. The average yield was about fifty per cent. of the assay, or \$22.30 per ton. A curious fact in the reduction of these slimes in barrels is, that nearly all the gold is lost, while a large percentage of the silver is extracted." It would be a piece of very interesting information to know what were the relative proportions of gold and silver in the slime, and also what were the exact proportions beneficiated; or has the loss of gold only been made approximately, and not from actual assays? When these facts are accurately ascertained, I do not think it will be difficult to account for the apparent anomaly, for apparent only I believe it to be; and if any serious comparative loss of gold occurs, it would perhaps not be difficult to discover the cause and provide a remedy.

Salt Spring Valley and the Adjacent Region in Calaveras County.

[Read before the California Academy of Natural Sciences, December 16, 1867, by W. A. GOODYEAR, Ph. B., Civil and Mining Engineer.]

[Continued from Page 66.]

It will be seen that the more recent and deeper developments in the Copperopolis mines have only served to confirm the opinion expressed two years ago by the State Geologist (Geol. vol. I. p. 225), that "the deposits of copper ore in this region, like nearly all the others in California, do not appear to be included in regular fissure veins, but rather to form independent masses [the italics are mine] lying in the direction of the strike of the inclosing rocks and dipping with them." It seems, further, that they are here arranged in some sort *en echelon*. There is no evidence whatever of the existence here of a regular and continuous vein of copper ore, stretching for miles through the country, as some have supposed. (See Ross Browne's Report, p. 144.)

The finding of "copper indications," *i. e.* of small and isolated bodies of ore, distributed with some constancy through a narrow belt of country, for no matter how many miles in length, is anything but conclusive evidence of the existence, beneath, of a regular vein of corresponding length (which, by the way, if it existed, would be an anomaly in the mining world)—especially when all the developments of the most extensive workings hitherto made point so decidedly and strongly to the opinion that there is no true vein at all. Such "indications" are however evidences, so far as they go, (and they go a good ways in this direction) of the probable existence of other large bodies of ore distributed here and there along the belt in question. It is not improbable that such may be found in the future, and it would not be strange even if some of them should surpass in magnitude and value the great deposit of the "Union," which has already yielded such enormous quantities of copper, and is yet far from being worked out.

A description of the auriferous deposit of Quail Hill, in the Gopher Range, together with a similar one at Whisky Hill (called also the "Harpending mine") in Placer County, by Prof. B. Silliman, was read before the California Academy of Natural Sci-

ences, at their meeting of April 15th, 1867, and will be found in their published "Proceedings," vol. III pp. 349-351. This paper describes well the particular deposits in question, as well as the general appearance and character of the formation in which they occur. Such deposits, however, are not confined to one or two localities; but there are other points in Calaveras County at which gold is known to exist in considerable quantity, and with similar mode of occurrence. Among these I may mention Quail Hill No. 2, near the Napoleon Copper Mine, two or three miles southeast of Quail Hill No. 1, and the "Plymouth Rock," or "Austin and Hathaway" claim, at Rich Gulch, near the Calaveras River. Moreover, the geological causes, and the peculiar chemical decomposition of the rock, which have been involved in the formation of the deposits in question, are by no means confined to the localities where gold is known to occur. On the contrary, they may be traced with considerable constancy through a narrow belt of country along the southwest flank of the Gopher Hills, and stretching from the Calaveras River southeast for a distance of at least fifteen miles, and perhaps farther. Towards the northwest, the same belt crosses the Calaveras; but how much farther it extends in this direction I have no present means of knowing. It is not unlikely that a similar formation may be found to exist, here and there at least, in the same general line of strike, nearly parallel with the stratification of the country through Amador and El Dorado counties to Placer, and perhaps beyond. The possibility of this at least is worth remembering. Throughout this belt, in the Gopher Range, surface cuts and shafts, of greater or less depth, made and sunk in prospecting for copper, are of frequent occurrence. In fact, this is the same belt that has been so often mentioned as "the second important copper-bearing belt of Calaveras County," and located some six or seven miles southwest of the main copper belt of Copperopolis. The "importance" of this belt, on account of the copper ores which it contains, has been most grossly exaggerated. An amusing illustration of this fact is to be seen in a "map of the copper mines of Calaveras County," published a few years since, which represents the whole region in question as literally covered for miles with highly colored "locations" or "copper claims;—the whole of which, with few exceptions, and these due not to copper but to gold, have served no further end than that of rendering their locators and owners sadder and wiser men. At one locality, indeed, viz., the "Napoleon mine," a body of copper ore was found, which in many countries would have been remunerative, and was worked to a considerable extent; but the working here was attended only with loss, and was some time since entirely discontinued. It should be remembered, however, in speaking of the copper mines of California, that not only have they had to contend with the general ignorance of copper mining, and especially of copper metallurgy which has existed throughout the State, and with extremely high prices for labor and transportation; but also that, for a year or two past, the largely increased supply of ore from the mines of Chili in South America, and elsewhere,—together with the diminished and consequent low price for metallic copper, reacting with increased effect upon the value of the ore,—have told with crushing weight even upon the best mines. There are certainly not more than one or two, perhaps not even a single deposit of copper ore in the known world, which surpasses or equals, in magnitude and intrinsic richness combined, that of the "Union" mine of Copperopolis; and yet, it is said, that even the "Union" itself, which is the only mine now active at Copperopolis, is hardly more than paying expenses at present rates. So far, then, as my observations extend, there is simply nothing whatever in this "second copper belt" which can for some time to come, justify the expenditure of money in searching for copper here; though it is not impossible that, besides the "Napoleon" mine, other deposits of ore may exist within the belt, which at some future time, and under more favorable circumstances of labor, fuel and transportation, may become of value for the copper which they contain.

[To be Continued.]

*A curious instance of the contrary will hereafter be cited from the last report of the Gould & Curry Company. While this was being corrected for publication, Mr. H. C. Bennett, of this city, very kindly obliged me with the sight of a very well digested series of statistics respecting the affairs of the Hale & Norcross Company, for the year ending 1st of March, 1867, in which, amongst other valuable tables, there are separate columns for the purpose of not only noting the percentage of gold and silver in the ore, but also separate columns detailing the percentage of loss sustained on each metal. These facts will be more particularly noticed next week.

Mechanical.

Transferring Power—Interesting Facts.

One of the most noticeable and interesting demonstrations at the Paris Exhibition, appears to have been the device of M. Hirn, for transmitting power to great distances, consisting in the employment of endless wire running over large and peculiarly constructed pulleys, one of which is at the transmitting, and the other at the receiving end of the range. This system of conveying power is termed *teledynamic*—employing power at a distance; as *telegraphy* is used for writing at a distance or afar off. This mode of conveying power, of course, is not new; neither is the principle involved in Mr. Hirn's device novel; but the application of the principle, in the manner indicated, is both new and valuable, and was adjudged, by eminent mechanics, as highly important as regards its future. In a well digested review of the Exposition, written by Robert Mallet, F. R. S., of London, we find the following:

At first sight, or to the casual observer, M. Hirn's arrangement, which was without interruption at work in the park, where it transmitted through a wire not thicker than a large pencil about 25-horse power (nominal), to actuate pumps (supplying the building) at a distance from the source of power of several hundred feet, appears but one form of the well known strap or belt, with its strap pulleys; and it is so much, but it is also much more, for it involves and is based upon a principle which had not before been made available for the transmission of power to great distance. This may be properly stated thus:—When work—that is pressure and motion together—has to be transmitted by tension through a cord or fiber, such as a wire or rod of iron, or other material, a given amount of work in a unit of time can be always transmitted through a smaller and smaller section of fiber or rod in proportion as we increase the velocity with which a point in the transmitting fiber or rod travels; so that the product of the pressure and of the velocity with which it acts to produce work shall be constant. For example, a cylindrical bar of iron of one inch diameter, we may say, can transmit a pull of ten tons through itself without stretching; and if, that pull being always on the rod, a point in its length passes a given fixed point at the rate, let us say, of five feet per second, then at that point the rod is transmitting work at the rate of ten tons \times 5 ft., = 50-foot tons per second. But if we have another rod of the same material, of only one-tenth of an inch in diameter, which will therefore have 1-100th the cross section of the one inch bar; this will bear, without stretching permanently, the 1-100th of ten tons, or 1-10th of a ton. Now, if this last rod transmits this pressure of 1-10th of a ton past a given fixed point at a rate 100 times as fast as in the former instance, then the work transmitted by the small and the great rod shall be equal in equal time; or 1 in. bar—10 tons \times 5 ft. = 50-foot tons; 1-10th-in. bar—1-10th ton \times 5 ft. \times 100 = 50-foot tons. But this last is a mere wire, and will be light and flexible enough to be passed round the rims of large pulleys at such high speed, and by friction on these rims (friction for equal pressures being the same at all velocities within large limits) to transfer the work to their axes in way of rotation. Thus, theoretically, the power of the largest steam engine in the world might be transmitted to any distance through a human hair. The practical limit with steel wire is found, however, about where the diameter is reduced to from two to 3-10ths of an inch. The limit of velocity is only that at which by centrifugal force or want of perfect balance, the pulleys might become deranged or unsafe. M. Hirn has, by this beautiful and simple adaptation in practice of a dynamic principle, succeeded in transmitting the power which drives large factories to great distances: in some cases as far as across the Rhine near Schaffhausen.

PARAFFINE AS A LUBRICATOR FOR HEATED MACHINERY.—A suitable lubricator for hot air engines and others, where portions of the apparatus are raised to a high temperature, has been a great desideratum, the ordinary oils under the circumstances becoming clogs, rather than aids to the motion of machinery. A French engineer now recommends paraffine very positively as answering all the purposes required. The article need not be very pure; a mixture with other fatty substances answering a very good purpose.

THE STEAM JET CUPOLA.—The use of the steam-jet to create a draught in a narrow chimney has been understood, says *Engineering*, ever since Trevithick thus employed it in 1803, or, at least since Nicholson fully described its action, and patented certain applications of it in 1806. A steam-jet was tried many years ago at Caerphilly, in the wide throat of a blast furnace; but Mr. Edmonds, who made the experiment, soon found that it would not answer merely because the throat of the furnace was so wide that the jet drew its air, not through the charge below, but from the large space immediately about it. In the small chimney of the locomotive, as used by Trevithick and by Hedley, long before Geo. Stephenson could bring himself to see its advantage, the steam-jet, whether of waste steam or live steam, is effective, and is found not to be greatly more costly, even with live steam, than would the working of mechanical blowers delivering the same amount of blast, at least where the blast is to be delivered under the slight pressure required for cupola furnaces. Messrs. Woodward Bros., of the Queen's Foundry, Ancoats, Manchester, have now erected upwards of sixty cupolas having closed tops and charging hoppers, and having a narrow sheet iron chimney flue, taken off at the side, through which a jet of live steam is discharged as the only means of producing a draught. Engines, fans, or other blowing machinery are thus dispensed with. Some of these cupolas have been at work since April, 1865, and among these who have been supplied with them are Messrs. Robert Stephenson & Co., Messrs. Galloways, of Manchester, Messrs. Beyer, Peacock & Co., Messrs. Dehson & Barlow (Belton), the Manchester Steel and Plant Co., and many other well known firms.

ARTIFICIAL GRINDSTONES.—Ransome's artificial stone—the silicate of lime—has been found to make excellent grindstones, remarkable for their uniform texture and fineness of grain. A pair of these were lately tested in England against a pair of Newcastle stones under similar conditions. According to the report of this trial a bar of steel three-fourths of an inch in diameter was placed in an iron tube fixed to the frame of the grindstone, in the end of which was a spring which pressed against one end of the steel rod, and thus kept the other end constantly against the grindstone. In sixteen minutes one-quarter of an inch of this rod was ground away by the artificial stone; the same rod was placed on the Newcastle stone, having 20 per cent. greater surface than the other, and after eleven hours of similar contact the rod was ground away one-quarter of an inch—the value of the stones being as one to thirty-three. From an examination of specimens of this stone on exhibition in New York, we are forced to believe this report is greatly exaggerated.

MAKING HINGES.—A French machine for manufacturing wrought iron and brass butt hinges has lately been brought to this country. Sheet iron or sheet brass is employed, of proper thickness. The hinges are made complete for market in one single machine. Two strips of metal enter the machine on one side from coils; on the opposite side is placed a coil of commercial wire, which enters and forms the huge rivets; the screw holes and countersinks all being made in one operation. One hundred hinges of the smallest size leave the machine per minute, in a condition to be packed for market. One machine will make five different sizes of huts—four inch hinges being made at the rate of from twenty-five to thirty per minute.

A MR. DAVIS, of Boston, has devised a process by which wood is made to take the place of paper in covering the walls of rooms.

A VESSEL recently arrived at this port with a large amount of goods from China, purchased at prices so remarkably cheap that the custom house officers at that port would not believe in the veracity of the invoices, and seized the goods as falsely valued by the purchasers. The probability is, however, that the invoices are correct, it takes so little to sustain life in China and wages are so low. In the importation were handsome sets of porcelain bought for \$4 the set. Beautiful fans, painted by hands in brilliant colors, with figures of dragons and Chinese beauties purchased at a cent each. Spades for garden use bought at a cost of a few cents each. Straw hats of good quality invoiced at a cent each. Nice baskets, in sets of four, costing in the Celestial Kingdom but four cents a set, and other articles equally low.

Scientific Miscellany.

The Dodo.

Mr. George Clarke, of Mauritius (Isle of France), has recently discovered, in a swamp on that island, a large deposit of the bones of the famous dodo. By this discovery an entire skeleton of this singular bird has been given to science. The history of this bird presents one of the most remarkable instances on record of the extinction of an entire race of animals within the age of man—the last individual of the species having probably disappeared about the year 1700. Another most remarkable scientific fact connected with the history of this bird, is the circumstance, that until the discovery just noted, the data for determining the species to which it belonged was much less than those left by many birds and other animals who perished long ago, anterior to the probable existence of man on the globe. One of these birds was exhibited in London in 1638; but the descriptions left of it from that early age of natural science, are too crude to determine even the family to which it belonged. The existence of this singular bird appears to have been confined to the group of islands of which Mauritius is the largest. When those islands were first discovered, the bird existed in great numbers, and was killed by sailors for food. Soon after the Dutch took possession of the islands, in 1644, it began rapidly to decrease in numbers, by reason of their ceaseless hunting of it for food, and from its natural enemies—dogs, cats and rats, which accompanied the advent of the Dutch to those islands—the latter devouring the eggs and young in the nests, which were always on the ground. When the French succeeded the Dutch, in 1715, it appears to have entirely disappeared.

This bird belonged to the order of *colombæ*, or pigeons. It was nothing more nor less than a gigantic pigeon, with long legs and small wings. The latter were so feebly developed as to be of no use for flight; while the former were not much better even for walking. Its general shape, feathering and natural awkwardness, resembled more nearly a very young, than an adult pigeon. One naturalist has described it as a very clumsy bird, resembling "a young duck, or gosling, enlarged to the dimensions of a swan." Probably the helpless condition of this bird, which may be reasonably inferred from the above description of it, has led to its early extermination and probable non-removal to any great distance from the locality where it first appeared upon the earth. Its fossil remains have never as yet, we believe, been found outside of the Mauritian group of islands, which are situated in the Indian Ocean, some eight or ten degrees east of the large island of Madagascar. It is said to have laid but one egg, about the size of that of a pelican's, and lived mainly upon tropical fruits, as they ripened and fell from the trees.

Previous to the late discovery of the skeleton by Mr. Clarke (which, however, is slightly imperfect, in lacking the tip of the wing), the only portions of a skeleton known to be in existence were a head and foot at Oxford, England, a skull at Copenhagen, a foot in London, and a beak at Prague. There are several drawings and paintings yet in existence, which were made by artists who had seen it in its native islands, and which are supposed to be quite truthful in their delineation.

OXYGEN IN THE MARKET.—A company has been formed in Paris under the style of Jos. de Susini & Co., for the manufacture and sale of oxygen to be mixed with ordinary illuminating gases. The calculation is that an addition of one-third oxygen will be equivalent to multiplying a given quantity of illuminating gas eight times, the price of oxygen being fixed at only 2½ times that of ordinary gas. The superoxygenated gas will be used in lighting the International Lecture-room of the Exposition.

THE GULF STREAM AND THE LATE EARTHQUAKES.—One of the most noticeable effects of the late earthquakes in the West Indies, is said to have been an increase in the velocity of the current of the Gulf Stream, near the Florida shore, from three and a half to four miles per hour—or over fourteen per cent. The current is now so rapid as to make the passage of the Key West reefs quite dangerous—vessels are almost forced upon them by the increased current, which there sets up from the southward and eastward. This increase in the current of the Gulf Stream is attributed to an upheaval of the ocean bed, from the region of St. Thomas towards Cuba; thus, to a certain extent, closing up the Mona passage between San Domingo and Porto Rico, and also blocking up the windward channel between Cuba and Hayti. By this change in the bottom of these seas, a greatly increased volume of water is forced up through the old Bahama channel, from whence it strikes across to the Florida reefs with much greater violence than formerly. By reference to a map, it will be seen that Cuba, San Domingo, Porto Rico and the entire group of islands to the southward and eastward, including our new purchase of St. Thomas, are made up of the more elevated portions of a submarine mountain chain. It is not at all unreasonable that a portion of this range should have been slightly elevated during the recent convulsion in that region. The result of such elevation would infallibly produce such a change as is reported to have occurred in the velocity of the Gulf Stream, while a subsidence would produce an opposite effect.

TO OBTAIN FLUORINE.—Many attempts have been formerly made to obtain this highly electro-negative element in a separate state, but without success. M. Prat now avers that he has isolated fluorine by heating fluorine of lead either with nitrate of potash or binoxide of manganese. The result of this operation is a gaseous mixture of oxygen and fluorine; from this the oxygen is abstracted by passing the mixture over heated oxide of barium. The binoxide of barium is formed, while the fluorine is left in the form of a gas. M. Prat states that it is colorless, and has an odor resembling chloroform. It decolorizes indigo; reddens litmus; fumes on coming in contact with air; gives dense fumes with ammonia; decomposes water, as well as hydrochloric acid; unites with hydrogen in diffuse light, forming hydro-fluoric acid; and last, it combines with all metals, excepting perhaps platinum and gold. M. Prat's experiments are to be repeated before a committee from the French Academy of Sciences. He seems to have selected a most direct path to success, by first obtaining a mixture of two gases, which, it is well known, do not combine chemically.

ATMOSPHERIC METER.—Prof. De la Rive, of Geneva, Switzerland, has invented an instrument for determining the transparency of the atmosphere. It consists of a double telescope with a single eye-piece, by which two objects at known distances may be compared. Thus the effect of the stratum of air between may be noted. The inventor thinks that a measure of transparency may be of great importance in a sanitary point of view. He agrees with Pasteur, who supposes that the light, dry fog which sometimes intercepts the light is caused by myriads of organic germs floating near the earth, which become transparent when saturated with moisture, and are swept to the earth by heavy rains. Vaillant, however, believes that the haze sometimes seen in the weather is the effect of variations in the density of the atmosphere, for reflected light, passing through such a medium, would not give a distinct impression of distant objects.

HOW TO PUT OUT GREEK FIRE.—Greek fire is not so dangerous as is represented. It consists of phosphorus dissolved in bisulphide of carbon. When thrown upon any combustible material the liquid rapidly evaporates, and the phosphorus, being left in a comminuted condition, bursts into flame, evolving suffocating vapors of phosphoric acid. Water will only temporarily extinguish the flame, which bursts out again when the fire dries up; but the fire may be immediately and permanently extinguished by a solution of common washing soda—one pound to a gallon of water.

THE OLYMPIC EXHIBITION.—One of the greatest objections to living in a large city is the restriction of those healthful exercises which are calculated to develop the human frame, and give strength and vigor to the inhabitants. Where sedentary habits are contracted by long continued want of exercise, the entire frame becomes enervated, and instead of being what nature intended us, we become effeminate and unable, particularly in this climate, to withstand even the slightest change of weather. This can be seen by noticing the many dwindled forms and sunken chests which we daily encounter upon the streets, and the frequent complaints of colds and similar affections. Nothing so fits a man for the daily business of life as proper exercise. It gives him strength and health, and consequently life. While he is exercising his body, his mind naturally throws off all cares, and after having rallied his lax muscles, and sent the warm blood coursing through and to the ends of the minutest veins, until the perspiration flows freely, he is ready to go back to the desk or behind the counter and attend, with pleasure, that labor which would otherwise appear irksome. It does more; it gives a man confidence in his strength, and renders him active; and should circumstances place him in a position in which bodily strength and activity would be required, it might save him many a severe bruise or perhaps more fatal hurt.

The Olympic Club of this city has demonstrated to the community what benefit can be derived from constant and proper exercise; and we can say, without fear of successful contradiction, that few athletes, even professionals, can excel in some of the feats performed by members of this Club. At their exhibition on the evening of January 31st, some of the feats were really astounding, especially when we recollect that, for the most part, the actors are clerks and persons whose business requires them to be in constant confinement. The feat of balancing on a tight-rope, *a la Japanese*, with nothing but a Japanese umbrella or sunshade for balancing purposes, was performed by W. S. Lawton with great success. He walked the rope apparently with impunity, opening and shutting the umbrella, and performing other difficult feats. C. A. Bennett, the well known strong man, handled various dumb-bells, weighing from fifty to a hundred pounds each, with ease, holding one pair weighing fifty-four pounds each at arm's length, and then raising them slowly up over his head; then taking up a monstrous one, bearing the figures 152—meaning that it weighed that amount—he raised it over his head at arm's length, and holding it in that position, paced the hall back and forth. Ladder balancing by D. Wilder was well performed, and elicited frequent applause. Geo. H. Strong performed the difficult feat of supporting with his feet a large ladder, having fastened to it in the form of a T, five other ladders, while Master Tappiener, a lad of some seven years, climbed over it. Zampillerostation was performed by L. P. Ward and the Cook brothers, and called forth loud applause. Other feats of strength and agility were performed, all with the same success, and all present were impressed with the idea that the Olympic Club is a good thing. After the vigorous exercises had been gone through, the more light and airy exercises of the dance were entered upon, all joining who felt disposed. The entire entertainment reflects credit upon the members.

A MAMMOTH WELL.—The chief supply of water for the city of Cairo, in Egypt, is derived from a single well of mammoth proportions—300 feet deep and fifteen feet in diameter. Mules are employed day and night in raising water from this well.

HENDY'S CONCENTRATORS.—The North Star Company, of Grass Valley, has recently put in six of Hendy's concentrators. The Secretary writes to the office in this city that these concentrators are doing well—quite as well as had been expected.

The tallest spire in Europe, the Munster of Strasburg, is 466 feet high; the great pyramid of Cheops is 480 feet, but is said to be exceeded in height by some of the Australian forest trees.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

72,789.—TRUSS FOR HERNIA.—A. F. H. Braun, San Francisco, Cal.:

I claim the screw, a, having its bearing against the lever, D, the spiral spring, d, through which the screw passes, and the nut, b, for regulating the pressure of the pad in combination with the frame, C, axis, D, substantially as and for the purpose described.

72,934.—MARKING GAUGE FOR SEWING MACHINES.—Wm. M. Stoddard, San Francisco, Cal.:

I claim the device for marking for tucks, arranged in relation to the sewing machine substantially as described, and consisting of the adjustable guide bar, A, marker, G, having a slot, I, spring, a, and adjustable spring-bar, J.

72,645.—REVOLVING OVEN.—John Adam Kinkele, Sacramento City, Cal.:

I claim, 1. The oven, constructed as described, consisting of the inner wall B, placed between the outer case, A', having cold-air openings, a, and the oven, C, all supported by an annular plate upon the foundation, A, the hot and cold annular air-chambers, II, II', communicating with the common flue, J; the revolving hearth E of the oven, supported upon the plate E' by a pivot, and operated by means of the gear wheel, L, as herein described, for the purposes specified.

2. The rotary hearth, E, when constructed of tile or fire-brick, in combination with the oven, C, concentric wall, B, and casing, A', as herein described, for the purpose specified.

72,788.—ADJUSTABLE HASPS AND HOOKS FOR DOORS.—Wm. Bisbee and Fleming G. Hearn, Yreka, Cal.:

We claim, 1. The spring, C, in combination with the box hasp, B, for self-adjustment in contraction and expansion of doors, etc., substantially as above set forth and described.

2. The said spring, C, in combination with the adjustable hook, F, and hasp, B, substantially as and for the purpose above set forth and described.

72,885.—SCRIBE-HOOK FOR WEATHER BOARDING.—John Nester, Portland, Oregon.

I claim the weather-board hook, M, having the shoulders, I, I, when used in combination with the scale, O, slide gauge, F, spur, G, and sliding marker, B, the whole being arranged in one instrument, and forming a combined tool of the character and for the purpose set forth.

73,276.—IMPROVED RAILROAD SNOW PLOW.—John Rosco Adams, Cisco, Cal.:

I claim 1. The dash-board or share G, and the false bottom or slide F, operated by the hand-wheel g, and cord or chain g', substantially as and for the purpose specified.

2. The bonnet or gate E, for retaining the load upon the incline, and the hand-wheel and pins b, pawl d, and cord or chain b', for raising or lowering said bonnet, substantially as described.

3. The side pieces D and D', movable in the ways i i i', substantially as and for the purpose described.

4. The platform C, upon which the hand-wheels are placed, as described.

The object of this invention is to provide an improved engine or device for removing the snow from railroad tracks, and is so constructed and attached to locomotives that light snow will shoot up the incline of the frame, and be deposited at either or both sides of the track. Heavy bodies of snow, in deep cuts, can also be loaded upon it and carried to any convenient place of deposit.

To accomplish this a frame of wood is mounted upon a low truck, at an incline of from forty to sixty degrees. The shovel is made wider at its mouth, and has upright side pieces, which are curved and support a bonnet or gate, that can be let down to retain the load upon the incline. This bonnet is easily lowered or raised by proper appliances, worked by a hand wheel. Side pieces, which move in ways, are placed upon each side of the frame, to be moved down to the upright piece, when loading the plow. A bar passes lengthwise through the frame, above the axles, and is attached to the back part of the incline frame, passing through an opening in the rear end. This

bar is for the purpose of imparting strength to the plow, and providing a sufficient attachment to the locomotive. It has a sufficient sized opening in the rear, where it passes through the back part of the frame, to admit of the necessary lateral play required for turning curves.

72,977.—IMPROVED COMPOSITION FOR ROOFING.—Allen Cody, James Bartlett, and Henry M. Jones, Ukiah City, Cal.:

We claim a compound cement for roofing purposes prepared and applied substantially in the manner and for the purposes set forth.

The object of this invention is to provide a plastic composition, for the purpose of roofing, which, upon drying, will form a solid roof, which will be proof against the extremes of heat and cold, and impervious to water.

A mixture or mortar is made of certain mineral and organic substances which is spread over the roof prepared by laying the sheathing boards close together, or better to have them tongued and grooved, so as to form a tight and level surface; this mortar is then spread over the surface with a trowel, until it is about an inch in thickness. This having been done, it is suffered to remain undisturbed for two days, to require the necessary firmness, when a thin solution of the same mortar is made, by adding a certain liquid until it is of the consistency of paint. This preparation is then spread over the mortar with a brush, to fill up any fissures or defects which may have been left in the act of spreading, or which may have been produced in the process of drying. By this means it is claimed by the inventors that they are enabled to secure a roof that will withstand the most intense extremes of heat and cold. The thin solution, when used as a common paint for shingles, etc., prevents them from shrinking or warping from the weather, and is also a most effectual fire-proof paint.

73,007.—IMPROVEMENT IN FIRE-ESCAPE.—Edward Hawthorne, Mountain View, Cal.:

I claim the apparatus, constructed, arranged, and operated substantially as and for the purpose described.

The nature of this invention consists in providing a ready means of escape from burning buildings, and has been named the "Nonpareil Fire Escape."

This end is accomplished by attaching to each side of the casement or window, upright frames of iron with transverse arms. Across these arms are placed a bar having a ring in it, to which the lowering apparatus is attached.

The lowering apparatus consists of a square frame, with upright posts at each corner, and having flat, horizontal bars bolted to the uprights. Midway between the bars, at right angles, is another bar, having a ring in its center, through which a rope is placed, connecting the machine to the frame above. The lower portion of the apparatus consists of a flat bottom, and the upper part is attached to a canvas bag, by means of eyelets, rings, and cords, the apparatus being so arranged as to be lowered by the person occupying it. When lowering from bay windows, and for avoiding such like projections, two curves may be employed—with extension arms and eyes in their ends.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

COLUMBIA HOMESTEAD ASSOCIATION.—San Francisco. Capital stock, \$61,200. Trustees: J. B. Wooster, W. Turnbull, R. H. Randall, S. P. Taylor and J. W. Burnham.

MISSION VIEW HOMESTEAD ASSOCIATION.—San Francisco. Feb. 5th. Capital stock, \$33,600; 112 shares. Trustees: W. Monahan, Peter Ross, Gerald Cullan, Wilbur F. Bayley, J. Marks, J. W. McKenzie and Martin Brnfield.

THERE are nine different steamship lines plying between New York and various European ports. These ships, during the past year, have transported in round numbers, 222,000 passengers, over 1,000,000 tons of freight and specie to the amount of \$43,000,000.

EXACTIONS OF ROYALTY.—Queen Victoria has fixed in the pulpit of the Chapel Royal a sand-glass measuring only eighteen minutes.

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This is a new publication, and in style and treatment of this important subject, is original, simple, plain and comprehensive. The author, Prof. LAYRES (a meritorious Teacher of good standing in California, and a sound thinker and reasoner,) in his preface says: "The method pursued by the Author in developing the subject of Composition, is both the synthetical and analytical. The former is necessary to teach the theory, the latter the practice of the art; and as these are both indispensable to the scholar, so are also the two methods, as the sequel will show."

The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools.

To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—John Seely.

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—J. C. Pelton.

After as careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of its arrangement, it was, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—Wm. H. Hill.

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—J. H. Hatch.

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text-books.—James Denman.

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—Martin Kellogg.

I recommend it to all those who wish to obtain a book that will give them definite ideas on this subject, and teach them to express their thoughts and feelings in a clear, simple, and forcible manner.—Caroline L. Atwood.

I regard the book about to be published as far superior to any work extant upon that subject.—Wm. S. Hunt, A. M.

I believe the work will be a valuable and much needed addition to our school text-books.—Herman Perry.

You have brought the results of a profound analysis, and made them available, in a practical form.—I. H. Bragdon.

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and as advocates at the forum.—John Curry.

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. * * * It will soon become a necessity in every lawyer's library.—Charles A. Tuttle.

Its clearness and comprehensiveness make it easy.—G. W. Boote.

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end. He seeks to teach the student not only how to take sentences apart, but how to construct them. His system has the merit of originality. We know of no work in which can be obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Layres has done the cause of popular education good service.—S. F. Bullfinch.

This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap, and convenient, and in reach of the humblest.—Alta California.

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—S. F. Times.

Prof. Layres plunges at once "in medias res." He seizes a sentence (which is the unit in composition, whether written or spoken) holds it up before you; tears it to pieces before your eyes—or rather, we should say, neatly and skillfully dissects it—displays one by one its several parts; makes you thoroughly acquainted with each, in its entirety; and then shows you how to put them together again. A series of such experiments, increasing in complexity so gradually that you do not feel the difficulty, and the thing is done; you are master of the subject.—Mining and Scientific Press.

Its design is to show that ideas can be so arranged as to increase their power; in short, to teach the mechanism of composition, eloquence and oratory. A desideratum long felt is supplied.—S. F. Examiner.

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SAN FRANCISCO, SATURDAY MORNING,
February 8, 1883.

CITY STOCKS.

In city shares the market has been more active during the past week, and the descriptions of stocks offered and sold more varied than for some time past. We note sales of Oakland Railroad stock at \$62, and North Beach and Mission at \$60. The six city railroads, according to the returns made to the Internal Revenue Department, upon a legal tender basis, ranging from 71 to 75 on the dollar, show their aggregate earnings to have reached \$839,551 during the year 1877. In insurance stocks we find that Pacific sold at \$120@119; Fireman's Fund at \$86.50@86, and National at \$71. The Merchants' Mutual Marine Insurance Co. will disburse a dividend of 1 per cent. on its capital stock on and after the 10th instant. San Francisco Gas stock was in the market at \$65@65.25. The usual monthly dividend of 1/4 per cent. was paid on the 1st instant. California Steam Navigation sold at 79 per cent.

The San José Savings Bank filed articles of incorporation in the office of the Secretary of State February 1st. Capital stock, \$100,000, in 1,000 shares of \$100 each. The principal place of business will be in San José. The following named persons are the Directors for the first six months: James C. Cobb, W. Mobary, H. Hoffman, W. W. McCoy, James Hart, L. Archer and Hiram Schartzner.

MINING SHARE MARKET.

We report an active market for the period under review, and the usual line of stocks dealt in was somewhat extended. Speculative feeling is tending towards a very decided advance in spring, and the prospects of such a rise are considered very favorable by the best informed. Information from the Nevada mines is meagre, though prospecting continues to be quite extensively carried on. Several companies that have been idle for a long time past will resume work within a few months, and a more general activity than usual may be anticipated throughout the whole extent of the Comstock lode.

HALE & NORCROSS—has been less active, receding from \$3,300 to \$3,100, and closing at \$2,925, seller 60. This company has now about 1,000 tons of ore on hand, said to average from \$40 to \$45 per ton. The superintendent has been telegraphed to start two mills, and it is thought that by the 10th they will be in running order.

CROWN POINT—was dealt in to a moderate extent and at fluctuating rates, rising from \$1,100 to \$1,265, declining to \$1,175 and \$1,140, then jumping to \$1,330, and closing yesterday at \$1,280. The 600-foot level at present produces nearly all the ore that is extracted from the mine. It continues to look well in going east, and the whole "raise" below this level is said to be in good ore. The west body on the same level averages four feet of ore. In drifting north 35 feet below the 500 level, they continue to find good pay ore, and a cross-cut west from the same, it is reported, is leading into the same character of ore as that found in raising on the west body of the 600 level.

SAVAGE—was less active early in the week, but sales increased at the close, advancing from \$135 to \$142.50, declining to \$136, and closing at \$142. The ore extracted during the week ending February 1st amounted to 1,728 tons, showing an approximate value of \$36.62 to the ton.

CHOLLAR-POTOSI—has been quite active under an advance, improving from \$172 to \$196, receding to \$177, and closing at \$187. The product of the old mine during the week ending January 30th amounted to 400 tons; the various mills took 557 tons, leaving 2,283 tons on hand. The average yield of the mills during January is reported not to be over \$15 per ton. The sinking of the new shaft is said to be pro-

gressing rapidly; the rock is getting harder. On the 3d instant, the shipments of ore amounted to 104 1/2 tons. The bullion product during the month of January aggregated \$41,000.

YELLOW JACKET—was active at the close, selling within a range of \$873@845, and closing at \$840. Our information concerning this claim is quite meagre. It is reported that the south shaft had bulged considerably early last week, and work was suspended until the same is repaired.

ALPHA—suddenly rose to \$1,100, then sold at \$1,000@1,050, and at the close \$1,050 is bid. This claim lies west of the location of the Imperial-Empire shaft, and this advance is based upon the expected favorable developments through it in that direction.

IMPERIAL—was less inquired for than last week, receding from \$205 to \$196, then selling at \$199, seller 30, and at the close obtaining \$200, buyer 30. On the 4th instant the shaft contained 160 feet of water, with the pumping machinery in good running order. At present the teams are carrying 25 tons of ore to the Rock Point and 35 tons to the Gold Hill mill. Seventy tons is at present the daily product of the Alta mine. The receipts of bullion in January amounted to \$43,833.

KENTUCK—sold at \$257.50@285, and closed at \$275, buyer 30. The bullion receipts of January, so far as advised, reach \$47,782.

OVERMAN—advanced from \$70 to \$85, then sold at \$77@80, and closed yesterday at \$90, buyer 30. BULLION sold at \$34@32.

GOULD & CURRY—is quiet, small sales having been made at \$410@430, closing at \$430. The ore product of this mine during the month of January amounted to 1,389 1/2 tons, and bullion yield to \$14,476.

EMPIRE—is also quiet, realizing \$195@200. In January, the bullion yield aggregated \$16,050. The ore has been running low of late; nevertheless this company has been able to defray all its expenses out of the lessened product. BELCHER rose from \$170 to \$195, buyer 30, and at the close sold at \$190.

GOLD HILL QUARTZ—has been steady, selling at \$90@94. In January the bullion product amounted to \$6,837.44. CONFIDENCE at \$52.50@60. EXCHEQUER declined from \$28 to \$25, and closed at \$26. The assessment now due on this stock will be applied to the mine, work upon which will be resumed in a month or two. DANNEY advanced from \$6 to \$16, and at the close \$10 is bid. An assessment of \$2 per share, or \$8 per foot, was levied on the 1st inst. SIERRA NEVADA sold within a range of \$15.50@12. An assessment of \$10 per share was levied on the 5th inst.

AMADOR—continues to be firmly held; it can be had for about \$200. This claim produced \$43,500 in bullion during January, and the expenditures amounted to \$10,500. Deducting the dividend of \$6 per share, amounting to \$22,200, payable since the 7th inst., they have a surplus of \$13,000.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,577,296; open sessions, \$379,070—total, \$1,956,366.

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NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY	DAY
	DELINQUENT.	OF SALE.
Adella, Sierra Co., Feb. 3, \$1.....	March 6—March 30*	
Amador Co., div. \$6 per share.....	Payable Jan 10	
Arizona Consolidated, Dec. 23, \$3c.....	Jan 29—Feb 1*	
Belcher, Storey Co., Nev., Dec. 27, \$15.....	Jan 27—Feb 23	
Belcher, Baldwin & Abenahable, Storey Co., \$5.....	Jan 27—Feb 23	
Campo Seco, Calaveras Co., Jan. 23, \$2.....	March 1—March 16	
Chilpaneca, Sonora, Mexico, Jan. 23, \$5.....	Feb 25—March 16	
Chicokeo Flat B. G., Butte Co., Cal. Jan. 7, \$5.....	Feb 10—Feb 27	
Colorado, Colorado City, Dec. 31, \$10.....	Feb 3—Feb 21	
Conchita, Mex., Jan. 2, \$1.....	Jan 27—Feb 1*	
Crown Point, Nev. dividend \$30.....	Payable May 15	
Daney, Lyon Co., Nev., Feb. 1, \$2.....	March 4—March 23	
Dio Padre, Mex., Jan. 10, \$5.....	Feb 11—March 6*	
Exchequer, Gold Hill, Nev., Jan. 30, \$3.....	March 4—March 25	
Enterprise, Nevada Co., Jan. 6, \$1.....	Feb 6—Feb 25	
Empire M. & M., Nev., dividend \$6.....	Payable May 15	
Fogus M. & M., Amador Co., Cal. Jan. 4, \$5.....	Feb 8—Feb 25	
Golden Rule, Tuolumne Co., div. 50¢ per sh.....	Payable Dec 25	
Gold Hill Q. M. & N.—dividend, \$7.....	Payable Dec 16	
Hope Oravel, Nevada Co., Jan. 28, \$1.....	Feb 28—March 17*	
Hanscom, Del Norte Co., Jan. 15, 75c.....	Feb 14—March 2*	
Imperial, Virginia, Nev., div. \$10.....	Payable July 15	
Julia, Storey Co., Nev.....	Sale, Feb. 25	
Josephine Quicksilver, San Luis Obispo, div. \$2.....	July 8	
Kearney, Lyon Co., Nev., Jan. 9, \$2.50.....	Feb 24—March 16*	
Kentuck, div., \$7.50 per share.....	Payable Nov 9	
Lake, Lake Co., Jan. 15, \$20.....	Feb 16—March 5	
Lady Bell, Del Norte Co., Jan. 8, 15c.....	Feb 10—March 3*	
La Blanca, Sonora, Mex., Jan. 2, \$2.....	Feb 1—Feb 17*	
Nuestra Señora, Mex. Jan. 3, \$1.....	Feb 10—March 3*	
North Star Lander Co., Nev., dividend.....	Payable Nov 23	
Mt. Tenabo, Lander Co., Nev., Jan. 9, \$2.50.....	Feb 20—March 12*	
Overman, Gold Hill, Nev., Jan. 30, \$15.....	March 4—March 23	
Ophir, Storey Co., Nev., Jan. 21, \$3.....	Feb 21—March 10	
Oxford Bend, Esmeralda, Nev., Nov. 18, 60c.....	Jan 23—Feb 12*	
Old Colony, Lander Co., Nev., Dec. 19, \$2.....	Jan 23—Feb 20*	
Patrocinio & Dolores, Mex., Jan. 15, \$2.....	Feb 14—March 2*	
Rippon, Alpine Co., Dec. 17, 50c.....	Jan 22—March 5*	
Rattlesnake, Yuba Co., Jan. 23, \$2.....	Feb 26—March 17*	
Sierra Nevada, Storey Co., Nev., Feb. 5, \$10.....	Mar. 11—Mar. 31	
Savage, Virginia, Nev., dividend.....	Payable Jan 15	
Santiago, Silver City, dividend.....	Payable Dec 10	
Shoshone, Lander Co., Nev., Dec. 11, \$1.....	Jan. 10—Feb 20*	
Texas Flat, Fresno Co., Cal. Jan. 3, 25¢ per sh.....	Feb 15—Mar 3	
Ventana, Mex., Jan. 3, \$1.50.....	Feb 10—Feb 27*	
Weich Q., Contra Costa Co., Jan. 22, \$3.....	March 17—April 7*	
Yellow Jacket, Gold Hill, Nev., Jan. 22, \$25.....	Feb 21—March 23	
Yellow Jacket, Gold Hill, div. \$75 sh.....	Payable July 15	

* Those marked with an asterisk (*) are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

	Friday Evening, Feb. 7, 1883.	Bid.	Asked.
United States 7-10ths Bonds, June Issue.....	76 1/2	77	
Legal Tender Notes.....	70 1/2	71	
California State Bonds, 7s, 1887.....	98	97	
San Francisco Bonds, 10s, 1881.....	102	103	
San Francisco City Bonds, 6s, 1881.....	85	85	
San Francisco City and County Bonds, 6s, 1882.....	80	81	
San Francisco City and Co. Sch. 4 Bds, 7s, 1886.....	84	85	
San Francisco City and Co. Bonds, 7s, 1882.....	84	85	
San Francisco City and Co. Bonds, 7s, 1884.....	84	85	
San Francisco City and Co. Judg. Bds, 7s, 1884.....	84	85	
Sacramento City Bonds, 6s.....	75	76	
Sacramento County Bonds, 6s.....	75	76	
Stockton City Bonds.....	70	71	
Yuba County Bonds.....	75	76	
Santa Clara County Bonds, 7s.....	75	76	
Butte County Bonds, 10s, 1880.....	70	71	
San Mateo County Bonds, 7s.....	70	71	
California Steam Navigation Co.....	62 1/2	63 1/2	
Spring Valley Water Co.....	30	31	
State Telegraph Co.....	30	31	

GAS COMPANIES.

San Francisco Gas Co.....	65 1/2	66
Sacramento Gas Co.....	—	—

RAILROADS.

Sacramento Valley Railroad.....	—	—
San Francisco and San Jose Railroad.....	40	45
Omnius Railroad.....	40	42
Central Railroad.....	60	61
North Beach and Mission Railroad.....	60	61
Front Street, Mission and Ocean Railroad.....	11	12

BANKING INSTITUTIONS.

California Loan and Savings Society.....	—	—
Bank of Pacific Accumulation Loan Society.....	90	100
The Bank of California.....	152 1/2	156

INSURANCE COMPANIES.

Fireman's Fund Insurance Co.....	85	95
Pacific Insurance Co.....	115	119
San Francisco Insurance Co.....	80	100
Merchants' Mutual Marine Insurance Co.....	80	100
California Insurance Co.....	1300	1400
Union Insurance Co.....	92 1/2	94
California Home Insurance Co.....	—	10
Home Mutual Insurance Co.....	—	80
Ocidental Insurance Co.....	—	80
National Insurance Co.....	69	71

MINING STOCKS—WASHOE DISTRICT.

Alpha.....	1030	1100
Balmora American.....	—	—
Belcher.....	187 1/2	192 1/2
Bullion, O. H.....	84	86
Crown Point.....	128 1/2	129 1/2
Confidence.....	55	60
Chollar-Potosi.....	185	190
Daney.....	10	13
Exchequer.....	20	27
Empire Mill and Mining Co.....	190	195
Gould & Curry.....	430	440
Hale & Norcross.....	3250	3500
Imperial.....	187 1/2	200
Lady Bryan.....	—	—
Ophir.....	50	60
Overman.....	125	130
Savage.....	112 1/2	125
Sierra Nevada.....	10	12
Yellow Jacket.....	830	840
Golden Rule, California.....	1 1/2	1 1/2
Gold Hill Quartz.....	87 1/2	90
Kentuck.....	270	275

San Francisco Market Rates.

Wholesale Prices.

	Friday, Feb. 7, 1883.
Flour, Extra, per bbl.....	\$7 50 @ \$8 25
No. Superdual.....	6 75 @ 7 00
Corn Meal, per 100 lbs.....	3 00 @ 3 50
Wheat, per 100 lbs.....	2 50 @ 2 75
Oats, per 100 lbs.....	1 50 @ 1 80
Barley, per 100 lbs.....	1 75 @ 1 80
Beans, per 100 lbs.....	2 50 @ 2 80
Peas, per 100 lbs.....	2 50 @ 2 80
Potatoes, per 100 lbs.....	1 00 @ 1 20
Butter, per lb.....	15 @ 16
Lard, per 100 lbs.....	9 00 @ 10 00
Beef, extra, dressed, per lb.....	10 @ 12
Sheep, on foot.....	3 00 @ 4 00
Hogs, on foot.....	6 @ 6 1/2
Dogs, dressed, per lb.....	9 @ 9 1/2

GROCERIES, ETC.

Sugar, crushed, per lb.....	14 1/2 @ 14 3/4
Do, China.....	14 @ —
Coffee, Costa Rica, per lb.....	20 1/2 @ 21
Do, Rio.....	19 1/2 @ 20
Tea, Japan, per lb.....	65 @ 85
Do, Green.....	60 @ 125
Hawallah Rice, per lb.....	9 @ 24 1/2
China Rice, per lb.....	6 @ 7
Coal Oil, per gallon.....	45 @ 46
Candles, per lb.....	18 @ 22
Runch Butter, per lb.....	35 @ 45
Edmunds Butter, per lb.....	17 @ 37
Cheese, California, per lb.....	20 @ 23 1/2
Eggs, per dozen.....	50 @ 55
Lard, per lb.....	11 @ 12
Ham and Bacon, per lb.....	13 @ 15
Shoulders, per lb.....	10 @ —

Retail Prices.

Butter, California, fresh, per lb.....	50 @ 65
do, pickled, per lb.....	25 @ 60
do, Oregon, per lb.....	15 @ 25
do, New York, per lb.....	35 @ 40
Cheese, per lb.....	20 @ 30
Honey, per lb.....	25 @ 30
Eggs, per dozen.....	60 @ 65
Lard, per lb.....	12 1/2 @ 15
Ham and Bacon, per lb.....	11 @ 13
Cranberries, per gallon.....	1 00 @ 1 25
Potatoes, per lb.....	2 @ —
Onions, per lb.....	2 @ —
Apples, No. 1, per lb.....	4 @ 5
Peas, Fatima, per lb.....	5 @ 7
Plums, dried, per lb.....	11 @ 13
Peaches, dried, per lb.....	10 @ 11
Oranges, per dozen.....	60 @ —
Shoe, per dozen.....	24 @ —
Chickens, apiece.....	1 @ 1 00
Turkeys.....	16 @ 18
Soap, Pale and C. O.....	7 @ 12
Soap, Castile, per lb.....	19 @ 20

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

	Friday, Feb. 7, 1883.
Iron.—Duty: Pig, \$9 per ton; Railroad, 60¢ per 100 lbs; Bar, 10 1/2¢ per lb; Sheet, polished, 3¢ per lb; common, 1 1/2¢ per lb; Plate, 1 1/2¢ per lb; common, 1 1/2¢ per lb; Galvanized, 2 1/2¢ per lb.	
Scotch and English Pig Iron (per ton).....	\$35 00 @ \$37 50
White Pig Iron.....	36 00 @ 40 00
Refined Bar, good assortment, per lb.....	— @ —
Boiler, No. 1 to 4.....	— @ —
Plate, No. 5 to 9.....	— @ —
Sheet, No. 10 to 13.....	— @ —
Sheet, No. 14 to 20.....	— @ —
Sheet, No. 21 to 27.....	— @ —
Copper.—Duty: Sheet, 3 1/2¢ per lb; Pig and Bar, 2 1/2¢ per lb.	
Sheet, 14 to 18.....	— @ —
Sheeting, Yellow.....	— @ —
Sheeting, Old Yellow.....	— @ —
Boils.....	— @ —
Composition Nails, per 100.....	— @ —
Tin Plates.—Duty: 25 per cent ad valorem.....	
Plates, Charcoal, 1X, per box.....	12 50 @ 13 00
Plates, 1 O Charcoal.....	11 00 @ 11 50
Roofing Plates.....	10 50 @ 11 00
Banca Tin, Sds, per lb.....	— @ —
Steele.—English Cast Steel, per lb.....	— @ —
Coke, per ton.....	— @ —
Lead.—Pig, per lb.....	7 1/2 @ 8
Sheet.....	— @ —
Pipe.....	— @ —
Bar.....	— @ —
Zinc.—Sheet, per lb.....	9 @ 9 1/2
Borax.—California, per lb.....	— @ —

San Francisco Prices of Copper Ores.

SAN FRANCISCO, Feb. 7, 1883.

We give the following as an approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent. The late reduction in price is on account of the advance of freight:

	Per ton.	Per ton.
12 per cent. ore.....	\$18 00	\$22 per cent. ore..... \$43 50
13 " ".....	18 62 1/2	" "..... 46 45
14 " ".....	19 25	" "..... 49 33
15 " ".....	20 00	" "..... 52 22
16 " ".....	20 75	" "..... 55 11
17 " ".....	21 50	" "..... 58 00
18 " ".....	22 25	" "..... 60 88
19 " ".....	23 00	" "..... 63 77
20 " ".....	23 75	" "..... 66 66</

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Jan. 25th: We have two different statements this week in regard to the I. X. L. mine; one that the mine is turning out not less than a ton each day of No. 1 ore; the other, that though they are taking out ore of very fine quality, the quantity is small.

One day this week the Pennsylvania Co. cut a small feeder of quartz, which shows a very silver largely. No doubt is entertained that this is a feeder to the main lode, pitching rapidly toward it, which, as an indication of the quality of ore which may be expected in the lode, is of great importance.

The Consolidated Monitor Co. have decided on a point for the immediate opening of one of their lodes, by running a lateral tunnel from a gulch above their present works. A new location, comprising about 2,000 ft. of the lode from the foot of Boulder Hill—Eagle Gulch—to the starting point of the new tunnel, has been made for the company, and work will be started on Monday for the purpose of proving its value.

Amador County.

Ledger, Feb. 1st: The Kearsing mill in this place, which has been idle for some time, has been put in good condition, and is now pounding away. They are now working the tailings from the Coney & Bigelow mill for the purpose of saving the sulphurets—using the Ambler process.

Mr. James Tullock, one of the lucky quartz miners of Amador county, last week struck a vein of rich quartz at Central Hill, about four miles northwest of this place. The company have named their location the "Central Hill Claim," and are making arrangements to sink a shaft upon the lead. The surface croppings prospect rich in free gold.

Butte County.

Oroville Record, Feb. 1st: The owners of the Jennie Ledge, in Granite Basin, have been running the mill of Messrs. Halstead & Sparks, with rock from their ledge. Some 65 or 70 tons of ore were worked, producing amalgam to the amount of about \$12.50 per ton. We understand that the Jennie has paid Halstead & Sparks for crushing 300 tons of ore, with the proceeds of which they will erect a 16-stamp mill.

Calaveras County.

Chronicle, Feb. 1st: The Palomo mill has been started to work. Everything works as smoothly and nicely as though it had been in operation for months. The battery is composed of eight stamps, weighing 600 lbs. each.

Morton & Co. are engaged in sinking a shaft on their claim. They will erect a mill in the spring.

San Andreas Register, Feb. 1st: A great deal of excitement has been created in our town within a few days over the discovery recently made by B. K. Thorn. It now appears that the lode is much wider and richer than it was at first supposed to be, and recent prospecting discoveries have established the fact that both sides of Thorn's first location is equally as rich, if not richer, than the claim upon which he has planted himself. We have examined a great deal of rock, said to be from the main lode, and have seen it carefully crushed and washed, and all we have to say about it is, the like thereof we have never before seen.

Amador Ledger, Feb. 1st: Business at Cat Camp is fast improving, and mining is very brisk there at this time.

Inyo County.

Virginia Enterprise, Jan. 30th: Mr. C. F. Duval arrived in this city yesterday from Cerro Gordo district. He brings some rich and beautiful specimens of silver ore from the mines of Cerro Gordo; also a small amount of bullion in bars. Not much bullion will be taken out before next summer. Most of the Mexican miners have left for the new placer mines in the Coso country, where they can do very well during the winter and the wet months of spring.

Los Angeles County.

News, Jan. 17th: The main Delphi ledge has been struck in the tunnel, which has been run through hard rock for the last six months, at the depth of 2,100 ft., and the ledge is full 4 ft. in width, and of its accustomed richness. This mine has always been the richest one in the district. The new mill of the Delphi Co. is now completed, with roasting furnaces for the working of sulphurets.

The Relief ledge has been struck at a great depth, and is producing rock of extraordinary richness. Col. Rand, the super-

intendent, suspended operations upon the mine, except in the way of sinking, for the purpose of proving the richness of the vein at a great depth. This work has now been accomplished, and after sinking through hard rock to a distance of over 300 ft. from the surface, the mine has proved rich and the vein substantial and permanent.

The mines of the new El Dorado district, near Sageland, 30 miles east of Havilah, are yielding rich returns. The St. John Co. is now crushing ore from its mine continually, and the average yield is about \$40 per ton. A fourth interest in this mine was recently sold to J. C. Birdseye for \$20,000. An undeveloped mine, known as the Phoenix, in the same district, recently sold to Bridger & Kearney for \$13,000.

Lake County.

Courier, Jan. 31st: Late accounts from the gold mines in the northern part of this county are encouraging. Three companies are now at work there, and judging from the preparations being made, they intend to stick to it. Other places in this vicinity give fair prospects, and gold in small quantities can be found in almost every ravine in this section of the country.

Napa County.

Register, Feb. 1st: A very promising discovery of cinnabar has recently been made northwest of Pine Flat, beyond the Sonoma county line. Specimens of the ore have been brought into town, which excel in richness any that we have ever seen. It is reported that the true ledge is discovered.

Nevada County.

Transcript, Jan. 30th: Messrs. Neece & West cleaned up from their cement claims, after a week's run, the sum of \$2,000. These claims are looking splendid. The cement claims in Little York township will soon give a good account of themselves.

The Scandinavian Co. have struck some splendid rock, and the ledge is 2 ft. 3 in. thick. They are taking out a large quantity of rock. It is the intention of the company to erect a fine mill in the spring.

Jan. 31st: The Cornish mine, on Deer creek, is yielding first-rate rock, and is paying well. The company are going to put in a new battery of six stamps, and fix up the machinery generally.

Frank Fisher has been engaged for some time in fixing up and overhauling the machinery for Palmer & Everingham's quartz mill, which is to be erected at Graniteville.

Grass Valley National, Jan. 30th: The New York Hill Co. commenced running their 10-stamp mill a week since, and finding it insufficient to work off the rock taken from the mine, are about adding 10 additional stamps. The rock continues to turn out as rich as heretofore, and in addition to the daily amount taken out, the company have 900 loads of rock on hand awaiting crushing facilities.

Jan. 31st: Pike Flat continues to pungle out specimens, Mr. A. Shurtliff being the lucky picker up of one of these worth-the-picking-up arrangements, on Tuesday last, worth \$40 in gold.

Feb. 3d: McCauley & Co's mill, at Boston Ravine, is engaged in crushing a large quantity of rock from the Spring Hill mine. The rock will come up to the general average of rock heretofore crushed from this mine.

The Inkerman Co. are at work prospecting, and have a whim for hoisting in operation. The character of this as a paying ledge will shortly be ascertained. Some handsome specimens have at times been taken from it.

Gazette, Jan. 29th: We were shown yesterday by Mr. Tisdale a lot of fine specimens of ore from the Banner mine, some of them containing free gold in abundance and others being rich in sulphurets. The most of the ore in the mine is of the sulphuret variety, in which the gold is not visible; but three separate shoots have been found, in which free gold is interspersed in seams through the rock. The work in this mine, which was partially suspended about the first of January, is again in full blast, and the new hoisting and pumping apparatus is working to perfection.

Feb. 3d: During the month of January, the New York Hill Co. raised 600 loads of rock, averaging a ton and one-fourth per load. The clean-up after the first three days' run of the new mill yielded \$1,600, while a considerable amount must have been taken up by the new machinery.

At the North Star mine, 1,200 tons of rock were hoisted from the mine from the 1st of January to the 1st of February, which is yielding an average of \$33 per ton.

The yield of the Empire mill, at Ophir Hill, at the clean-up of the middle of last month, was \$19,300.

Excelsior.—*Gazette*, Jan. 29th: D. A. Rich, who went to Meadow Lake two or three weeks ago to repair one of the dams of the South Yuba Co., arrived in town

yesterday, having returned by way of Cisco. He says the weather has been intensely cold in that region, and the snow is some 10 or 12 ft. deep on the level, but in some places has drifted to much greater depths. Only 30 or 40 persons are now stopping at Meadow Lake and vicinity, the remainder of the population having left, to spend the winter in a warmer climate.

Placer County.

Stars and Stripes, Jan. 30th: Quite a number of experienced miners from abroad are making their headquarters in Auburn and vicinity, and daily, when the weather is favorable, they may be seen with pick and shovel wending their way to the hills in search of quartz leads. The vicinity of Ophir, where the placer diggings were very rich, seems to be a favorite resort of prospectors.

Dutch Flat Enquirer, Feb. 1st: The miners' ditch at Gold Run, has reduced the price of water to the rates demanded by the Miners' Association of that place, that is, nine cents per inch for 10 hours and 15 cts. for 24 hours. Simultaneously with the reduction of the price of water, several companies have commenced work on their claims, and others are getting in readiness for work. Among the claims now at work are C. Carr and Sacks & Co. The prospects of the claims at the above place are represented as very flattering.

Sacramento County.

Folsom Telegraph, Feb. 1st: We heard of a wash up in a mining claim in this vicinity a short time since, from which \$4,000 was realized.

Shasta County.

Courier, Feb. 1st: The miners about Janesville, Roaring River and Arbuckle are said to be taking out more gold this winter than usual. Each mining season tends to establish the truthfulness of the theory that the mines on Cottonwood, about Janesville, are of a permanent character, such as will require years to work out or exhaust. It is the belief of many experienced miners that the branches of Cottonwood Creek will pay most of the way up to their source. From Janesville, to the head branches of Cottonwood is a distance of 40 to 50 miles, and the streams are lined with fine gravel bars and flats, some of which are known to contain gold, but have been but little prospected. All the streams putting down from the opposite side of Trinity Mountain have paid, or are now paying rich.

We are informed by several of the stockholders that the Horseshoe Bend Co. intend shortly to commence preparations for opening a claim on the ground drained by turning the waters of the Sacramento through the Horseshoe Bend tunnel.

Sierra County.

Downieville Messenger, Jan. 18th: The Goodyear's Bar correspondent gives the following casualties during the late storm. The high water has done considerable damage along the river to us miners. Craig & White lost their bridge across the river, carrying the flume from Goodyear's Creek to their claims. They intend building a wire bridge in the spring. The Goodyear's Bar Fluming Co. lost their bar and considerable of the flume. Wm. Thomas' Co. also lost most of their flume from the mouth of Rock Creek to Routadollar Bar, which cannot be repaired until spring.

The correspondent in Mohawk Valley writes: There has been but little mining done here since winter set in, although several companies are ready and waiting to take advantage of any fine weather when it does come. Sol. Babb and John Vann took out of Babb's Ravine, a few days before Christmas, \$225, one specimen weighing 11½ ozs. There are three other companies working in the same ravine, and are, no doubt, doing well.

Jan. 25th: The Gihsonville correspondent writes: The great abundance of water has enabled all who desired, to wash up their dirt. Claims, as a general thing, are paying fully as well as usual, while some are largely improving upon their former record. The Union claims are paying about an ounce per day to the band. They are working between 20 and 30 men.

Trinity County.

Journal, Jan. 25th: At Arkansas Dam, mining operations are almost completely suspended, as a result of the freezing term which preceded the last snow storm. Sheridan Bros. and Geo. Chapman were endeavoring to get work under way again when we passed there last Monday. The claims of Fisher & Co. across the river, are also idle from the same cause. At Evan's Bar work has been suspended. The high flume of McGovern & Co., which crosses the river a mile above, is loaded with tons of ice. The water had to be turned out over a week ago, the danger of its breaking being so great. Johnson & Timmerman are now opening a new claim on the high bench at the upper

end of the Bar. Lange's claim, on the opposite side of the river, is also frozen up.

More than usual activity, for the season, prevails about Junction City. Fegan has transferred his hydraulic to the hillside above the road and south of the old claim. Dacy Bros' claim, by the roadside, will be working shortly. On the opposite side of the river, Joe McKinney & Co. are tearing down Red Bank at a lively rate. It is one of the good claims. The Red Hill companies are all at work. We saw 30 ozs. of handsome dust which had just been taken from the claim of Mathews & Fecto, on Monday last.

Siskiyou County.

Yreka Union, Jan. 25th: All mining operations in the county have been suspended for several weeks on account of the severity of the weather.

ARIZONA.

Miner, Dec. 21st: The ravine recently discovered by England and Bridges, 11 miles from Prescott, continues to yield well. Judge Brooks recently panned out in one day \$5.

Noyes & Curtis are taking very rich rock out of the Chase lode, in Hassayampa district.

The Vulture mine, at Wickenburg, is now free from all incumbrances. The mortgages held upon it by Mr. Erwin Davis, of San Francisco, have been satisfied, and the Vulture Mining Co. are now the owners.

Dec. 25th: Miners at Walker's Camp are busily employed in working and taking out ore. N. A. French has worked another hatch of refuso Tie-Tie rock, which paid better than he expected. Fredericks, Marsh and Watson are taking rock from the Shamrock lode. Their team is constantly at work, bauling ore for the miners.

Workmen are now taking rock out of the Engenie, in Big Bug district. Work upon the Dividend is progressing, and the mill will be started soon. We presume the late rains caused the creeks to rise, and of course placer mining will commence.

Wickenburg & Smith, in Wickenburg district, will soon be ready to start up their mill.

The 20-stamp mill of the Vulture Co. is turning out piles of gold. Mr. Phelps, who purchased the claim owned by the V. M. Co., from Mr. Wickenburg, has returned to Arizona, and is now stopping at the mill.

Work on the Chase lode in Hassayampa district is being steadily prosecuted. One of the shafts is now down about 60 ft., and the rock taken out of it is excellent. Messrs. Noyes & Curtis are in high spirits, and believe they have struck it at last.

Wm. C. Reed has again commenced work on the Sterling mine. He will first try a lot of tailings which are supposed to contain considerable gold. The engineers and carpenters are now at work, getting the mill in order, and as soon as he works the tailings, he will put miners to work getting out ore. Mr. Reed has tried this mine before, and from some cause, did not succeed in saving the gold. Since that time he has been to California, examined the various processes used in that State to work sulphuret ores, tested Sterling ore himself, and had others test it for him to his complete satisfaction. He had 40 lbs. of it ground in a Varney pan, which yielded \$9.46, which would make the yield per ton, \$473.

Messrs. Roddick & Young are making things boil over in the Hassayampa district. Roddick presented us with a beautiful specimen of silver rock taken out of their lode—the Chance—at a depth of 44 ft. The pay rock is two ft. in width; the rock is the most beautiful we have ever seen, and contains plenty of silver. One of them panned 11 ozs. of silver and gold out of a panful of decomposed and crushed rock the other evening. Since writing the above, the boys have panned out over 21 ounces more.

Mr. A. O. Noyes intends to move his mill from its present location on the Hassayampa, up that creek, to some convenient point near the Chase lode.

At a miners' meeting held at La Paz, Dec. 16th, the boundaries of the La Paz district were fixed, and it was resolved that titles to mining claims shall be good until all Indian difficulties cease in the district, or for the term of 12 months from date.

COLORADO.

Central City Register, Jan. 4th: Geo. R. Mitchell has recently bought and moved on to the North Star property (Illinois lode) the large engine, tanks, etc., held by Capt. Tyler for indebtedness of the defunct Continental Co.

Mr. Blackman, of Mill City, recently exhibited to us some very rich specimens of silver ore from the Comet, a lode discovered last summer on the mountain above the Young America. Work is progressing favorably at Mill City. Mr. Hawkins is pushing forward his tunnel, ditto Mr. Brown of the Lincoln Co.

The Piasa Co. are fast completing their mill. New lodes, chiefly silver bearing, are being discovered occasionally on both sides of the creek in the vicinity.

Messrs. Loomis & Williams have leased the Cowenhaven claim on the Bates, and Mr. Miley is going to crush for them with the University Co's mill. The Chicago mill has been shut down. It was not in condition to run; not well built in the start, and not enough rock in the country to feed it and make it pay. A gentleman from Nevada informs us that 60 tons of quartz per day are now being mined in that vicinity, most of which is taken to Black Hawk for reduction. Mr. Conlee has engaged 20 stamps of the Black Hawk Co's mill, with a view of furnishing 40 more.

Georgetown *Miner*, Jan. 16th: The Hunkadora lode is again widening out. In September upwards of five tons of the ore was taken to mill for reduction, and since then 10 tons full width of crevice, including gouge, iron cap, etc. From the latter, Garrott, Martino & Co. run 4½ tons, of which the assay was \$76.92, of which they saved 82 per cent., or \$63.08 per ton.

Work on the Fulton lode is being actively prosecuted.

The weather still continues too cold for Garrott, Martino & Co. to start up their works.

Messrs. Hedges & Irwin are still working the Equator No. 2. The vein is improving, with indications of rich mineral in the bottom of the shaft.

Work on the Munsell lode is being actively pushed, and the vein is improving as the shaft deepens.

John T. Harris has laid upon our table a fine specimen of argenteiferous galena and sulphuret of silver ore, carrying blue and green carbonates of copper, from a new discovery on Sherman mountain.

Gen. Marshall is still actively working the Compass and Square lode.

Donvor *News*, Jan. 15th: We wereshown four bars of bullion at the branch mint this morning, valued at \$5,942.10.

The *Herald* says: The Sonora Co., in West Argentine, Clear Creek county, has shut down for the winter, on account of cold weather. On the Ayres lode, a tunnel has been driven 180 ft. This lode yields ore which assays as high as \$600 and \$800 per ton. The Mountain Man Co. are about to begin developing their property near the head of Virginia Cañon. A shaft house will be put up, and the work pushed forward with vigor. Dick Simons, of Georgetown, has struck a very rich lode on Sherman mountain.

DACOTAH.

Virginia *Enterprise*, Jan. 28th: It is quite certain that a large number of prospectors will leave this State early next spring for the Sweetwater mines.

IDAHO.

Boise *World*, Jan. 18th: Parties lately in from Deadwood Basin report that the mining season will open there on an extensive scale, and that 300 men will be required to labor in the diggings and in the ditches.

Owyhee *Avanture*, Jan. 25th: Mr. Skinner, who has just returned from Willow Creek, has shown us some of the gold. It is fine and bright, and probably worth between \$17 and \$18 per oz. Mr. S. is of the opinion that next season, while water lasts, the placers will pay good wages. The gold appears to be evenly diffused throughout the gravel from the surface downwards. No work is being done this winter, except getting out lumber for sluice boxes, etc., ready for use in the spring.

Mr. Sandburn, one of the purchasers of the Rising Star mine in Flint district, arrived in town this week from San Francisco. He was accompanied by a Mr. Smith, from Virginia, who is to be foreman. They will commence immediate sinking on the mine, and putting it in proper shape for working. It is the intention of the parties to erect a large mill as early as the season will permit.

MONTANA.

Post, Jan. 18th: The Bannack correspondent writes: Col. N. E. Wood is still successfully operating with his astral mill. The quartz from the Cherokee paid from \$250 to \$465 per cord, averaging about \$400 per day for the mill. He is now crushing rock from the St. Paul, with equal success. Mr. Geo. Brown is furnishing the quartz, and has large amounts ready, and can take out any amount. Mr. Harry King is also sinking on the same lead, and has struck upon a vein of most splendid quartz. Mr. Samuel Jagers is also sinking on a new section of the same lead. Mr. Herman Clark is driving ahead the tunnel to the Mademoiselle. Sears & Wright are sinking a shaft on the Fowler at Ball Mountain. Beside these, there is a large number of men

drifting in the Marysville Bar, in the bed of the creek, and in various other bars, and all have struck good pay. Some, indeed, have rich ground and will make their fortunes. Dr. Weston and Clark Smith have just got an arastrum at work on their big lead, on Black Tail Deer Creek, and are hopeful of success. Messrs. Clark, Kirby and McFarlan are developing their property on Birch Creek, and will erect a furnace there next summer.

The I. X. L. Co. had a fine brick of 204 ozs. turned out for them on Saturday. It was the result of a partial clean up from a run of six days of their 24-stamp mill, on ore from their ground on the Union No. 2 lode. Turnley's 10-stamp mill turned out 76 ozs. of nice retort from a run of six days on the Park lode.

NEVADA.

Black Rock.

Unionville *Register*, Jan. 25th: Uncle John Atchison passed through town one day this week, on his way to Black Rock, determined to give it one more trial. He was not, however, sanguine of success, yet believed his faith at least equal to a grain of mustard seed.

Esmeralda.

Virginia *Enterprise*, Jan. 28th: Mr. T. W. Abrahams yesterday arrived in this city from Pino Grove. He exhibited to us some fine specimens of ore from the Wilson mine, taken out near the Midas line, that were full of bright spangles of free gold. He brought with him 111½ ozs. of bullion from that portion of the Wilson mine upon which Toombs & Co. have a contract. This bullion is the product of about 40 tons of ore worked at Crosman's arastrum mill. The bullion was melted into a bar by E. Rulling & Co., assayers in this city, and was found to be worth \$1,981.69, or nearly \$50 per ton. Wilson's new 10-stamp mill started up about a week ago, and a clean-up will soon be made. Messrs. Toombs & Abrahams will shortly erect a 5-stamp mill, which they will procure in Washington district and remove to Pine Grove. The Wilson, Midas, Ophir, Wheeler and Cadmus mines are being vigorously worked, and are all looking better than at any previous time in their history. Pine Grove bids fair to become one of the best mining districts in the State outside of Virginia and Gold Hill districts. There will soon be half a dozen mines making regular shipments of gold bullion from that section.

Humboldt.

The Oreana correspondent of the Unionville *Register* of Jan. 25th says that the Montezuma smelting furnace has been in constant operation for over four months, reducing 1,300 tons of ore. The mine is developing to the utmost satisfaction. The lower levels now being run carry a ledge of solid ore 8 ft. in thickness.

Reese River.

Reveille, Jan. 24th: Yesterday nearly 4,000 ozs. of crude bullion were brought into the city from Rigby's mill at San Antonio. A lot of about 3,000 ozs. was sent here from the mill on the 8th inst. The bullion produced at the mill is obtained from the ore of the Liberty mine.

Jan. 25th: From W. B. C. Harker, who has just arrived from Silver Peak and Red Mountain districts, we learn that the operations of the Silver Peak and Red Mountain Co. are progressing finely. The mill will be finished in April, and will present many features of great excellence. Only the gold-bearing ledges of the company, situated in Red Mountain, are at present producing ore; the rich silver veins of Silver Peak are lying idle.

Jan. 27th: We learned through a private letter that for several days the weather has been very cold at Hot Creek, and had temporarily stopped the Old Dominion mill. The Merrimac and Old Dominion mines of the company were looking uncommonly well, and it was expected that the latter ledge would be struck in the tunnel a short distance further.

The Austin correspondent of the Virginia *Enterprise* of Feb. 2d, says: A 40-stamp mill is being built in Silver Peak district by the Great Salt Basin Co. for the reduction of gold-bearing ore from the Red Mountain mine. The mine is known to be of great value, thousands of tons of ore being available on the surface which will pay \$30 to \$40 per ton. The metal is free, flour-gold, not visible in the ore, but always giving a good "prospect." Gen. A. L. Page, who has recently returned from the East, is about to repair the Keystone mill, and as soon as salt can be got, he intends to reduce ores at \$35 per ton. Few mining regions produce such masses of ruby ore as can be seen at any of the best mines on Lander Hill. A stranger looking at a slab of ruby silver would wonder what kind of a mineral substance it was. He would admit that it was very compact and

heavy, of a beautiful crimson color; but he could scarcely think a ton of it would contain a thousand dollars of bright marketable silver. From the North Star mine a ton could be easily assorted out at any time which would go far over this figure. A conditional sale has been made to an Eastern company of the Northern Bello and two other lodes in Columbus district, and a mill will be built in the course of the summer. There is a large quantity of pay ore near the surface in this mine, the assay value of which, as proved by 25 tons worked at the Knickerbocker mill, in Union district, being \$120 per ton. The mill of the Centenary Co. at Newark has been doing excellent work for some time past, the daily yield of bullion being over \$1,000. The ore from the stopes yields \$100 per ton, and 12 men out of the 28 employed in the mine can take out enough to keep the mill in steady work. The ledge is 8 ft. wide in the lower winze, and carries a good quality of ore. From want of salt, the mill will have to be closed at the end of this week, and it will probably be in April or May before a supply can be obtained.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia *Enterprise*, Jan. 28th: Work has been commenced on the croppings of the Yellow Jacket mine, and the ore is to be taken to the dump through the Yolo Co's tunnel.

Having received their new spur-wheel, the Imperial-Empire are again at work upon their shaft. The main shaft is filled to the depth of 320 ft. with water. They will soon drain the shaft, when drifting will be commenced.

Jan. 29th: A portion of the machinery for the new Ophir pump arrived in this city yesterday. We presume that the remainder will soon follow, and that the whole will soon be set up, when work will be resumed upon the company's new shaft—now 165 ft. in depth.

Jan. 30th: Since the favorable results of the workings of the Lady Bryan croppings have become generally known, many abandoned mines in Flowery and adjacent districts are attracting attention. Next summer the croppings of many old mines in that section, as the Monte Cristo, Cherokee, Buckeye, Josephine, etc., will doubtless be worked.

Feb. 1st: Wells, Fargo & Co. shipped from their office in this city, during the past week, 2,272 lbs. of assayed bullion, valued at \$32,717.63.

Gold Hill *News*, Jan. 27th: Work on the new Ophir shaft has been discontinued, and will not be resumed until the new pump is placed in position.

The Dayton Silver M. Co., in Devil's Gate district, have levied an assessment of \$1 per share on its capital stock, payable on or before the 28th of February next. The company is arranging to develop their mine.

NEW MEXICO.

A correspondent of the Denver (Col.) *News* of Jan. 15th, writing from the Cimarron mines, says: Mr. Robinson, well known in this Territory, with four others, took out from a space not larger than ten square yards, up to Nov. 20th, 1867, \$55,000. Willow Gulch, at the head of which this prospect was taken out, is five miles long, and has been well supplied with water, from Willow Creek, which has never yet failed. On this gulch there are 17 companies, who have opened their claims. The Idaho Co. found the bedrock at eight ft., and the dirt paid 35 cents to the pan. The Union Co. took out \$1 to the pan. Anther & Co. have a claim, 16 ft. down to bedrock, where the pay dirt is eight ft. thick, and which yielded \$1.75 to the pan. Col. Henderson opened another claim eight ft. down to bedrock, and got 25 cents to the pan. At Beniles Willow, there are seven other rich gulches already discovered, which prospect well, but in some the water is scarce, soon to be supplied from a ditch now being constructed. Thos. Pollock has discovered a new gulch near Spanish Bar, which prospects 25 cents to the pan on the surface. The extent of the discoveries are over 25 miles. Gen. Hooper, of Colorado City, is now in these mines, and states that there are 1,000 miners there, and all appear satisfied with the prospects. Instead of but one lode of gold or silver discovered, there has been over 100 already found, which prospect free gold, free from sulphurets. One belonging to Paige & Co., has been sunk 20 ft., and the crevice shows five ft. The gold is readily seen with the naked eye, and prospects 50 cents to the pound of rock. Five miles from Willow Gulch, a large hill has been discovered, which appears to be all quartz. Three lodes which prospect well for silver, have been found. One copper

lode shows two ft. crevice on surface, and yields 41 per cent. of pure copper.

On the other hand, we have the following report from another correspondent in the same paper: "I have understood that some one has written to some paper in Denver, about large prospects of gold here. The best prospect I have seen, was no more than 15 cents to the pan. Most of the claims pay from one to two cents to the pan. Water is scarce. Several lodes of gold and one of silver have been discovered."

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San Francisco:

Saturday Morning, Feb. 8, 1868.

Notices to Correspondents.

F. A. Marysville.—We suspect that the non-malleability of the gold alloy you allude to is in consequence of the presence of a very minute quantity of lead, antimony or tin, which metals were probably derived from the solder employed in the gold rings you name. The lead and antimony would most probably become dissipated within a moderate time from the period of fusion; tin especially, if in the form of oxide, as some would be sure to become, would not dissipate so readily. If such is the fault, a little finely-powdered flint glass, niter and borax, added to the alloy, would form a slag that would absorb all the metals named. If niter, however, is used, the copper should not be added until afterwards. The case you state respecting the rolled plates formed from gold coin being malleable, but that on re-melting the "cuttings" from these plates, without any other addition of any kind, it is found impossible to procure a malleable result, we are unable to account for, unless in the course of hammering or rolling, the golden plate has been laid and pressed upon a leaden sheet or block. If the brittleness has arisen from the oxidation of the copper present, as might sometimes occur, the remedy would be to throw into the crucible a little pounded charcoal, or to stir the fused metal with a piece of wood, such as a dried willow switch. We would like to hear from you, with any further particulars, after the above has been received. One-quarter of a grain of antimony, tin or lead, or an equal weight of these metals combined, would suffice, if present, to render the amount of gold you name quite brittle.

GRAMMATICUS.—The oldest mode of spelling oxide was with the letter *y* in place of *i*. We believe it was Sir Humphrey Davy, who, during the early part of the present century, introduced the mode of spelling this word with an *i*. The recent change in the manner of spelling this word is only a resumption of the original, and more proper orthography. The word has a Greek derivation, viz. *oxis*, signifying sharp or acid. Many alchemical and ancient pharmaceutical preparations possessed the prefix *oxy*, as a specimen of which we may give for an example the word *oxymrhodine*, a mixture of two parts of oil of roses with one of vinegar of roses. The only ancient word of the class still in use (and that principally among druggists) is the word *oxymel*; acid or vinegar combined with honey. We agree with you in condemning the practice, now becoming common, of using the terms *oxyd*, *chlorid*, *iodid*, etc.; the *e* final should always be employed in such cases, both for euphony and grammatical correctness. It was the French nomenclaturists who first employed the word *oxygen*, to denote the gas with which we are now so well acquainted. The derivation is appropriate, being from the Greek words signifying acid, and to generate. At the time the word was adopted, oxygen was deemed to be the only acidifying element; hydrogen is now known to possess the same property.

Mr. SEWARD is talked of as Minister to England, in place of Charles Francis Adams, whose private business compels him to return.

Belting and Lacing.

SOMETHING NEW AND USEFUL.

There has always existed more or less complaint among millmen about belting and belt-lacing. The trouble with regard to the belting is not due so much to the workmanship of the belt maker, as to the leather of which the belts are made. Belt leather, although it may be quite strong when new, is frequently found to lose its strength and pliability by age. It becomes hard and brittle—*stale*, as the tanners call it.

The leather of which the best heavy belts are made is the same as that which is used for the soles of boots and shoes, with the only difference that when it is to be used for belts, it is oiled, but when it is to be worked up by the shoemaker it is compressed (rolled). The principal feature in the formation of leather consists in so chemically combining certain substances with the gelatinous compound which composes the skins of animals as to prevent it from undergoing such putrefactive change as would destroy its fibrous consistency. To accomplish this purpose, tannic acid is employed, either as an extract or in its various vegetable combinations, chief of which is the bark of certain species of the oak.

A lime, or some other depilatory process, is always used as preliminary to the tanning proper. Whatever process is employed for this purpose is more or less destructive to the hide. This is especially apparent whenever leather is put to a task where its power of tension is more particularly required. The lime cannot be entirely removed, and just to the extent in which it remains it is injurious to the leather. Most leather is subjected to a still further process, injurious to its tensile strength, but employed for the purpose of giving it a soft, spongy appearance—a condition under which it works more beautifully for covering or sinking the thread, as in sewing. This process is technically called *plumping*, or swelling, and consists in submitting it to a weak acid bath.

Good sole leather should remain solid when thoroughly soaked in water, to the end that it may preserve the boot or shoe in proper shape. It is desirable that sole leather should resist compression; and the more thorough the ordinary process of tanning, the better it answers this requirement. With harness leather, it is different, as harness works under other conditions. Durability, pliability and strength are the chief qualities benefiting the consumer. The manufacturer likes the leather rather well limed and spongy, because such leather as we have already intimated is easier sewed, the thread can with less exertion be sunk beneath the surface, and the various parts can also be more nicely shaped and finished to please the eye. Buyers are not judges.

The desirable qualities of good belt leather are, first and foremost, great longitudinal strength and pliability. There are but few belts where other qualities than these are desirable. Belts running on cone pulleys, or half-twisted belts which have to be kept on by a flange, are exceptions. It is not necessary for a belt to be thick, if thickness does not give strength. Lime and oak bark are the cheapest agents for the manufacture of leather; but they are not the best—at least not for belt leather or lacing. For such purposes they deprive the leather of its most desirable qualities—tensile strength and pliability—and gives it one which is not required at all, namely, the capacity to remain firm when fairly soaked in water. This is desirable in the sole of a boot or shoe. A leather belt is only expected to stand accidental moistening, and not be spoiled by a thorough soaking.

All over Russia, Poland, and some adjoining countries, there is a kind of leather used for harness, which, in point of usefulness and durability, is not equaled by any in the world. Although there is an abundance of good oak-tanned leather, farmers there scorn the idea of using such for harness. The leather which they prefer they prepare themselves, without lime or tanning; fish oil only is used. The preparation is similar to Indian tanning, but the leather so prepared is much harder. It is mechanical tanning exclusively. All chemi-

cal preparations and reactions are carefully avoided.

The great drawback to this kind of leather has heretofore been the cost of its preparation—a large amount of hand labor being involved. There exists in this city, however, an establishment where, by means of a machine, which has recently been patented through this office, the mechanical process of tanning has been so reduced in cost as to bring this superior leather within the reach of all. There are numerous belts made after this process now running in different mills and factories in this vicinity, which have been shown, by actual use, to be altogether superior to the best chemically-tanned belts. They do not stretch, and are of superior strength and pliability, and are no more changed by age than is common dry rawhide, when kept constantly free from moisture.

For double-belting, this leather possesses those qualities so much sought for, but not to be met with in common belt leather; viz: continuous strength and pliability.

As for lacing, the deficiency is owing partly to the fact that cheap inferior hides are used, and also to the mode of tanning. All lace leather generally used in this country contains salt and alum (readily detected by the tongue), and loses its strength rapidly when in use or lying about. But lace-leather often becomes unfit for use while on the way from the place of manufacture. The lace-leather, as manufactured in the establishment above referred to, differs from the other in the following respects: it is not artificially thickened; it does not stretch; is not affected by either dry or damp atmospheres, and never loses its strength. The manufactory above alluded to is situated at 435 Brannan street. See advertisement in another column.

FORESTS AND RAIN.—It is said that in certain parts of Egypt where many trees have been planted they are beginning to have a little rain. It is generally conceded that a country will produce more food when one-fourth of the ground is covered with forest, than when the whole is cultivated. All forest or all open plain is unfavorable to rain. A reasonable distribution of forest and plain is the most desirable condition for man, and the one best adapted for health. There is much probability that a judicious planting of forest trees throughout our California valleys, which would soon become valuable for timber and fuel, and the partial clearing of our mountain forests, which is already in rapid progress, would materially affect our summer rainfall. It is well known that the cutting away of the redwoods along our Coast Range is sensibly decreasing the productiveness of the neighboring valleys. The existence of the redwood forests benefits the land in two ways; by their shade they greatly retard evaporation, allowing the moisture in the earth to find its way downward to feed distant springs and rivulets, while their heavy foliage acts as a most important condensing agent, in conducting the moisture of the prevalent coast fogs to the earth. None who are familiar with our redwood forests can have failed to notice this last fact. So rapidly is condensation effected by the redwoods during a heavy fog, that a person will be wet through in a few minutes by the dripping from the trees, while he may travel perfectly dry all day in the same fog in the open country. The destruction of the redwoods of California will prove a greater calamity in the way alluded to, than in the scarcity of timber which will thereby be produced.

THE CENTRAL PACIFIC RAILROAD.—The progress of the Central Pacific Railroad on the Eastern slope is progressing with much extraordinary energy. Sufficient motive power and material for track-laying are now in transit to complete the track 100 miles eastward from the Summit by the time the season will allow of the closing up of the gap between the Summit and Cold Creek. It is expected that the cars will be running from Sacramento City to the Humboldt river by the first of August next. Over 100 gangs of Chinamen, in companies of 30 each, with white overseers, are now at work on the Eastern slope, below the snow line. The present favorable weather is being fully improved.

The Mining Academies of Saxony and Hungary.

After enumerating some of the advantages which Freiberg possesses as a locality for a Mining School, the writer of this paper proceeds to give some account of

THE MINING SCHOOL AT SCHEMNITZ.

The Academy of Schemnitz was founded during the reign of the Empress Maria Theresa, about the year 1760, for the purpose of educating officers to superintend the mining and smelting works throughout the whole of the Austrian dominions. The extent of the provinces composing the monarchy, and the low state of education in the more distant portions, made it very necessary to place under the direction of well-instructed men the management of departments so various as metalliferous mines, salt works, collieries, iron works, smelting furnaces, and forests, all of which are in some places in the hands of the Crown. The number of students has of late years considerably increased, and comprises not only those who seek for government employment, but also many who are sent by individuals, or by mining companies to pass through the whole routine of study, or to attend only some particular courses, according to the nature of the operations which it is intended they should conduct.

The institution has been endowed with great liberality; for not only are the professors paid by the government, but such a sum is yearly granted for the expenses of the well-ordered laboratory, and for other experimental purposes, that the students obtain gratuitously an excellent education. To obtain admission, subjects of the Emperor must be able to produce certificates of having passed good examinations at their schools, and also a recommendation from one of the *Hofrathe* or Aulic councillors, whilst the same advantages are open to foreigners provided with a suitable introduction through the ambassador, or some known person in their own government.

The system of education must be followed out equally by all during the first year, after which a certain number who are allowed to pass aside to the *Forstwesen*, or forest department, are freed from a great portion of the after studies, whilst it is left to the choice of the rest to pursue voluntarily that branch in addition to the regular routine. The subjects are divided as follows:

First year—1st half.—Elementary Mathematics, consisting of Geometry and Algebra; Plane and Spherical Trigonometry; Conic Sections; Plan-drawing. Second half.—Natural Philosophy (*Physik*) and Mechanics; Descriptive Geometry and Stereometric Drawing; Crystallography.

Second year—1st half.—Chemistry; Mineralogy; Metallurgy (*Huttenkunde*). Second half.—Geognosy.

The Foresters' course is Botany, Practical Geometry, etc.

Third year—1st half.—Subterranean Surveying (*Markscheidekunst*); Machinery and Drawing; Double Book-keeping; Botanical Abstract (on timber, etc.). 2d half.—Art of Mining (*Bergbaukunde*); Dressing of Ores (*Aufbereitung*); Architecture, or General Building.

The Foresters are exercised in valuing standing timber, etc.

Fourth year—Practical exercises (*Vervendung*).—Surveying, common and subterranean, four months; Mining, one month; Dressing and washing of Ores, one month; Smelting furnaces, two months.

During the third year, the young men are required on one day in every week to go through a portion of some mine, to examine minutely every particular, and to hand in a written report upon it to their professor. A few of them even take a piece of work on bargain which assists to pay their expenses, whilst it gives them a practical acquaintance with sinking and driving.

The half-yearly examinations are conducted (notwithstanding that which some travellers may have stated to the contrary) with great strictness, and quite openly; and according to their result, the students are divided into those who gain preference (*Vorzug*), 1st class and 2d class; those who have the misfortune of being placed in the latter (*ein zweiter Kreigen*) being obliged to undergo a second trial. The *Oberstkammergraff*, or supreme count of all the works in the district of Lower Hungary, also directs the academy, and in conjunction with the professors, assists on these occasions. The questions are written on small slips of paper, and two or three of them are taken up at hazard by each in turn as he is called upon in alphabetical order, and are answered *vice voce*. The most successful candidates receive as a reward a species of exhibition, sufficient to defray a great portion of their expenses, whilst those who have more than twice been returned in the sec-

and class, must relinquish all claim to government employ. The number of students at this school generally averages from three to four hundred.

When the practical course has been brought to a conclusion, the passed students are draughted off to different places, and into the various branches, to serve for four, six, or even more years of probation upon a small pay, as *Praktikanten*, after which, as vacancies occur, they receive the appointments for which they have been preparing.

The usual expenditure of the students is small, varying from 20*l.* to 60*l.* a year; the underground mining suit is their usual dress, though a neat uniform is worn on great occasions; a remarkable degree of harmony and good feeling prevails amongst them, and the duels so common in German universities, are here unknown.

DEFECTS POINTED OUT.

In looking at the system pursued at the above institutions, we find at both of them a prominent defect tending to impair the usefulness of the class of men which they produce, viz., that the time is so short in which the scholars are expected to pay attention to such a multitude of subjects, that it is impossible they can acquire all of them soundly and practically; and although an excellent foundation may have been laid, it must be left entirely to after years to rear up the superstructure, when amid the pressure of business, and other cares and pursuits, there is only a small percentage of men who feel an inclination to return to a system of study. The mode of partially obviating this evil, would be to separate more decidedly the departments of the mine and the smelting furnace; for although a portion of the earlier studies is necessary as a preparatory course for both, most of what follows cannot be obtained but at a great expenditure of time and labor; and in the ordinary routine it is as foreign to the business of the metallurgist to construct the timbering of a shaft, as to that of the miner to build a blast furnace. There are some cases, it is true, where works are to be conducted in an uncivilized country, when an extended knowledge must be highly desirable; but for these a fuller course of preparation is clearly necessary.

To Freiberg this remark is not so applicable as to Schemnitz, since in the former the two classes are kept more distinct; and it is probably to this source that we may trace the improvements—more particularly in metallurgy, which emanate from the Saxon Academy. In Austria it has been too common to pass men from one department to the other, as if skill in the one point must necessarily indicate a good acquaintance with another; upon the same principle which, ere now, has elevated a good carman on the Golden Horn from his humble *cayeeek* to the command of an army. On the other hand, I cannot but bear witness that the pupils of the Hungarian Academy, when full scope is given to them in the department which they have chiefly pursued, yield to none in the science and practical skill which they bring to bear on their object, as evinced particularly in some of their silver furnaces, in the water-pressure engines of Mr. Adriary, and the improved dressing works lately erected on a large scale by Mr. Rittengen, under the direction of the Oberstkammergraf von Svaizer.

For want of space, we condense the remainder as follows:

The system adopted at each of these places is the one best adapted for the lodes of each. At Freiberg, these are from two to six feet in width, the rock hard gneiss, and the surface slightly undulating; while at Schemnitz the lodes are fifty to two hundred feet wide, the rock greenstone porphyry, often softened by decomposition, and the surface rough. The plans for tunneling, shafting and timbering, must therefore be entirely different in the two places.

Notwithstanding these educational advantages, the scientific character of Austrian mining is lower than it once was, and lower than it should be. Science has been too much neglected for practice, and in consequence the advance made in other districts ignored. The Schemnitz student goes to his distant charge unprepared for a state of things unlike that to which he has been accustomed. The very object of such an institution is thus lost sight of.

So little advance had been made in 1841, that the Professor of Geology delivered as lectures the notes, unaltered, which he made half a century ago under Werner!

The course fails, then, as regards the teaching of general principles,—a most essential point. It need not, therefore, excite surprise that serious blunders should often be committed. It has been expected that a complete change will be made in the Schemnitz Academy. It has been pro-

posed by some that the preparatory studies be pursued in Vienna, and the various processes afterwards observed and practiced in the mining district.

A GOOD DEAL "LESS THAN NO TIME."

It seems strange, even in this age of wonders, to hear one say that a telegraphic dispatch sent from Valencia, Ireland, to San Francisco, 7,845 miles, in February, was received some time in January! Yet it is even so. On the 31st ult., at 10:40 P. M., the San Francisco office received a greeting from Valencia, dated February 1st, 6:54 A. M. It was, therefore, eight hours and fourteen minutes ahead of time. An answer was promptly returned from San Francisco. Both messages were repeated at Hoar's Content, N. F. After this little interchange of compliments, the San Francisco operator, to show what could be done, sent seventy-seven words to Hoar's Content in less than three minutes. The distance is about six thousand miles. Ninety-nine words were sent to New York in three minutes.

This is the longest working ever made. In our issue of January 25th, we spoke of the circuit of some 4,200 miles between Houston, Texas, and Salt Lake City, via New York, which was worked in December last, as the longest up to that time. That feat is now hardly worth mentioning. The cable might have been included in the single stretch, but for the difference in instruments. We append a memorandum, showing the difference in time between the several points, as shown by this experiment:

<i>February 1st.</i>	<i>January 31st.</i>	<i>Diff.</i>
Valencia..... 6:54 A. M.	San Fran.....10:40 P. M.	8:14
Heart's Content...3:10 A. M.	San Fran.....10:33 P. M.	4:37
New York.....1:40 A. M.	San Fran.....10:22 P. M.	3:13

MECHANICS' INSTITUTE.—The annual meeting of the members of this Association was held on Thursday evening. The great interest taken in the preliminary affairs of the proposed Industrial Exhibition was shown by an unusually large attendance of members, some 300 being present. After listening to the reports of the Treasurer, and the Committee on Finance, Building, Books, etc., it was voted to proceed to an election by ballot, of a committee of five to present nominations for officers to be elected for the ensuing year. The result of the election was as follows:

H. F. Williams, 113 votes; James Laidley, 111; P. Goughran, 101; Gardner Elliott, 113; George Cofran, 110; W. B. Ewer, 150; C. R. Steiger, 158; N. W. Spaulding, 157; A. S. Hallidie, 152; C. F. Bassett, 150; N. D. Arnott, 6; W. J. Lewis, 6; I. N. Scott, 4.

Messrs. Ewer, Steiger, Spaulding, Hallidie and Bassett were declared duly elected.

It was moved that the Committee publish the names of nominees within ten days, which was carried.

The following resolution was adopted: *Resolved*, That the Mechanics' Institute of the city of San Francisco now declare in favor of the eight-hour system, and respectfully recommend to the Congress of the United States and the State Legislature the passage of laws making eight hours a legal day's work.

The receipts of the Institute for the past year have been \$32,209; expenditures, \$31,461; books added to the library, 1,295.

THE GEOLOGICAL SURVEY.—A bill has been introduced making an appropriation of \$65,000 for continuing the State Geological Survey for the next three years. The State owes it to her good name, as well as to her most important industrial interests, that this bill should pass at once. There should be no pecuniary delay or hindrance in the way of this work.

An apparatus for effecting a continuous method of aspiration has been devised for accelerating the healing of great amputations. The chief cause of danger is thereby materially lessened.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. LUTY, Secretary. Office, 303 Montgomery street, corner of Pine, San Francisco. 2v15

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trade supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 26v15-3m

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block, San Francisco. 6v16-alm

Accidents.

The Traveler's Insurance Company, of Hartford, Ct. insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required. WM. MACDONALD & CO., Gen'l Agents, 121 Montgomery st., San Francisco, Opposite Occidental Hotel. 2v16-3m

NORTH AMERICA

Life Insurance Company.

Usual Restrictions on Occupation and Travel
ABOLISHED!

Policies of this Company are guaranteed by the State of New York, which is true of no other Company on this Coast.

The most Responsible and Liberal Company in the World!

J. A. EATON & CO.,

Managers Pacific Branch, 302 Montgomery st. 26v14m9p SAN FRANCISCO.

KNICKERBOCKER

Life Insurance Company,

OF NEW YORK.

Assets, - - over \$3,000,000.

Number of Policies issued in 1867, 10,300.

Amount Insured, - - \$21,375,671 00.

POLICIES ISSUED AT ONCE,

On receipt of Application at the San Francisco Branch Office, without referring to the Home Office at New York.

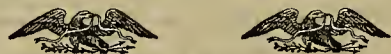
Policies Paid in Gold Coin or Greenbacks, at the option of the person insuring

[Extract from report of the Home Office, for Dec. 1867.] "The Company's history for the past fifteen years shows favorably, and its standing to-day ranks it among first class societies. It has carried out in good faith every contract made by it, never contesting a Southern claim during the war, while it is well known that many of our largest companies repudiated their Southern risks at the commencement of our National struggle, thereby increasing their assets. This honorable dealing of the Knickerbocker in the past, is a pledge of its future good faith."

Pacific Branch Office, 439 Montgomery Street, San Francisco.

GEO. T. SHIPLEY, M. D., Manager.

Agents wanted through city and State, and Pacific Coast. 6v16-3m9p



J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER.

Stamps, Seals, Steel Punches and Dies, Monograms, Notary Seals, etc., 522 Montgomery street, San Francisco. 6v16

LYMAN, MERITT & CO.,

Commission Merchants
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Office, 37 Merchants' Exchange, (up stairs) San Francisco
Cash advances made on Wool and other Produce.
N. B.—All kinds of Merchandise purchased upon orders. 6v16-3m

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AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Eisen Bros., Pioneer Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer. 6v16-3m

Sure Cure.

I PROMISE TO CURE RHEUMATISM, NEURALGIA, Gout in the Feet or Ankles, Chills and Fevers, Dyspepsia, Piles, Mange, Ringbone, and all kinds of Sores, in men or animals, and no matter of how long standing, whether inherited or otherwise. Also, Heart Disease, Sore Eyes, Sore Throat, Diphtheria, Secret Diseases of all kinds cured. DR. JAMES BROWN, 340 Broadway, between Sansome and Montgomery streets, San Francisco. Persons living at a distance can receive Remedies per mail, on reception of description of disease. 6v16-3m

Builders' Insurance Company—
OFFICE IN THE BUILDING OF THE
CALIFORNIA SAVINGS BANK, California
street, one door from Sansome street.
FIRE AND MARINE INSURANCE. 16v14m9p

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Have in store a large assortment of the following articles, which they offer

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Bar and Plate Iron,

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IRON, GAS AND WATER PIPE;

WROUGHT SPIKES,

Black and Galvanized;

SHEET IRON,

Black and Galvanized;

BOILER RIVETS;

CUT NAILS;

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RUBBER HOSE AND BELTING,

PLUMBERS' GOODS, ETC.

—ALSO—

Are manufacturing at the

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LEAD PIPE, SHOT, SHEET AND BAR LEAD.

Orders will be received for any of our LEAD MANUFACTURES, and prices agreed upon for the year 1868.

THOS. H. SELBY & CO.,

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SAN FRANCISCO.

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The JUNIOR is especially qualified to meet the wants of young boys, for whom separate apartments and Teachers are provided.

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The highest price paid for Scrap Iron. 9v14m9p

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Permanently established for the treatment of all diseases of the Eye. Dr. F. was for seventeen years principal of the Lafayette (Ind.) Eye Infirmary. F. W. FONDA, M. D., Surgeon in Charge, Office, 402 Montgomery street, opposite Well, Fargo & Co's. 4v15-1y9p

DRS. GRISWOLD & ALBERTSON,

Homeopathic Surgeons and Accoucheurs,

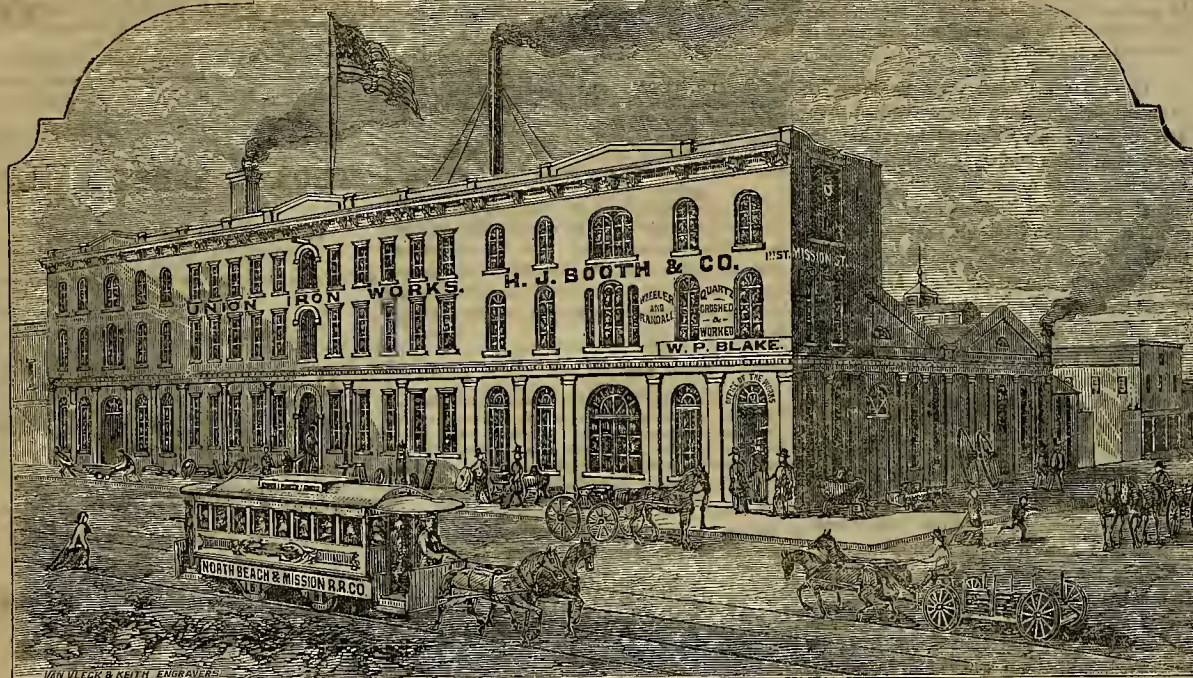
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ENGINES.—Marine Engines, Oscillating and Beam; Stern and Side Wheel Boats, Locomotives, Stationary Engines, Horizontal, Upright, Oscillating and Beam, from six to fifty inches diameter. Also, Scott & Eckart's Adjustable Cut-off Regulator—best in use; W. R. Eckart's Balance Valve for Stationary Engines; Woodward's Patent Steam Pump and Fire Engine.

BOILERS.—Locomotive, Flue, Tubular, Upright, Cylinder and Cornish, and every variety of Boiler Work. All sizes of tubes and pipes for pumps.

PUMPS.—The Excelsior double-acting Force Pumps are manufactured by us. These very superior Pumps are warranted the best, and are fast replacing all other Force Pumps.

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Requires no springs or screws; is always steam tight; without excessive friction, and never gets slack or leaky.

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Having been engaged for the past ten years in quartz mining, and being conversant with all the improvements, either in Mining or Milling, we are prepared to furnish, at the shortest notice, the most perfect machinery for reducing ores, or saving either gold or silver.

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MINING MACHINERY, WROUGHT IRON SHUTTER WORK, AND BLACKSMITHING IN GENERAL.

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STEAM ENGINES AND BOILERS,

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Dies warranted to be made of the best white iron.

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Packing, requires no springs or screws; is always steam-

tight, without excessive friction, and never gets slack or

leaky.

MACHINERY OF ALL DESCRIPTIONS

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Work, executed in order, and warranted as to quality.Old Stand, corner of Bush and Market streets, opposite
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Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior turn. All kinds of Cocks and Valves, Hy-

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PRICES MODERATE.

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Quartz, Flour and Saw Mills,

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Improved Crusher, Mining Pumps,

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JOHN LOCHHEAD'S
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STEAM ENGINES OF EVERY DESCRIPTION SUIT

to order—Marine, Stationary, or Locomotive.

HOISTING AND PUMPING ENGINES,

PORTABLE ENGINES, OF ALL SIZES,

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The attention of the parties engaged in shipping or inland

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Superior Workmanship

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STEAM ENGINES.

Screw Propellers of all kinds, and Steam Boat Machinery

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satisfaction in every particular. 25v12-3m

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SOUTH BEACH IRON WORKS,

Near corner of King and Third streets, San Francisco.

MARINE ENGINES,

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All kinds of Ship-smithing and Mill work manufactured to

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Jobbing and Polishing done at shortest notice.

Special premium awarded at the last State Fair, Sa-

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STEAM ENGINES,

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Particular attention paid to repairing Reynold's Cut-off

5v13v

UTILIZATION OF WOOLEN BAGS.—Shoddy, a much belied article, being really a very important article, is, as is well known, formed from woollen rags reduced to fine shreds, and worked up again in combination, in greater or less proportion with the wool. The inferiority of the unmanipulated staple results from the methods heretofore employed for disintegrating the rags, which are reduced in large part to mere powder. A process has, however, recently been patented, by which the old fabric is first separated into threads, which are then torn apart by means of peculiar hooks, so that the fiber is not broken or damaged, and may be worked over almost as well as new.

FIRE RECORD.—The following is a recapitulation of the losses by fire which occurred in the United States during the past twelve years:

Total losses in 1856	\$21,150,000
Do. 1857	16,792,000
Do. 1858	11,561,400
Do. 1859	16,553,000
Do. 1860	15,597,000
Do. 1861	18,020,000
Do. 1862	17,690,000
Do. 1863	14,000,000
Do. 1864	22,522,000
Do. 1865	43,139,000
Do. 1866	66,410,000
Do. 1867	36,945,000

Total losses in twelve years.....\$304,854,000

PETROLEUM EXPORTS.—The quantity of petroleum exported from New York in 1867 was 33,431,778 gallons. In 1866 the quantity exported was 33,992,394 gallons. Decrease in 1867—560,616.

The quantity of petroleum exported from Philadelphia to foreign ports in 1867 exhibit an increase over the exports in 1866 of 1,915,357 gallons.

At a recent sale in Georgia, a cotton gin sold for fifty cents and plows for five cents each. Many farms are being sold for small indebtedness, and there is a fair prospect of the universal bankruptcy of the South, unless the stay-law can be restored.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.

Hamburg, by Hamburg mail—2 cents each.

Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.

Lunenbourg, by Bremen mail—3 cents each.

Lunenbourg, by Hamburg mail—3 cents each and 1 cent per 1/2 ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1/2 ounce.

Sweden, by Bremen or Hamburg—3 cents each, and 1 1/2 cents per 1/2 ounce.

Norway, by Bremen or Hamburg—3 cents each, and 1 1/2 cents per 1/2 ounce.

Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1/2 ounce.

Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1/2 ounce.

Switzerland, by Bremen or Hamburg—4 cents each.

Italy, by Bremen or Hamburg—5 cents each.

Turkey, by Bremen or Hamburg—3 cents each, and 5 1/2 cents per 1/2 ounce.

Greece, by Bremen or Hamburg—3 cents each, and 5 1/2 cents per 1/2 ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 5 1/2 cents per 1/2 ounce.

Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1/2 ounce.

Austria, India and China, by Bremen and Hamburg mails, via Trieste—8 cents each, and 2 cents per 1/2 ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.

Hamburg, by Hamburg mail—1 cent per ounce.

Prussia, Austria and German States, by Bremen or Hamburg—1 1/2 cent per ounce.

Lunenbourg, by Bremen mail—1 1/2 cent per ounce.

Lunenbourg, by Hamburg mail—1 1/2 cent per ounce, and 1 1/2 cent per 1/2 ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg—1 1/2 cent per ounce and 1 1/2 cent per 1/2 ounce.

Sweden, by Bremen or Hamburg—1 1/2 cent per ounce, and 2 cents per 1/2 ounce.

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A UNIVERSAL ALPHABET.—It is not generally known in this country that one and the same telegraphic alphabet is used in Great Britain, France, Belgium, Holland, the German States, Italy, Spain, Portugal, Malta, Switzerland, Denmark, Norway, Sweden, Russia, Persia, Greece, Turkey, Africa and India; also, for the Mediterranean, Persian, Gulf, and the Atlantic cables. This alphabet was originated by the Germans.

THE NATIONAL DEBT.—The January statement of the public debt shows the total debt to be \$2,642,325,251, while the cash in the treasury is \$134,200,603. This indicates a decrease in the debt during the past year of \$35,199,522.

THE INSIDE DOME OVER THE REPRESENTATIVES HALL IN THE INDIANA STATE HOUSE fell, on the 22d inst., with a loud noise, making a general smash up of the desks and furniture in the hall. The entire building is old, and this accident indicates a general insecurity.

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[MAY, 1886.]

VOLUME SIXTEEN

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- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA,
San Francisco, May 24, 1886.
Recently, two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way meet our fullest approval.

They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks.

We deem the lock entirely burglar-proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find no difficulty in either opening or closing it, nor in changing its combinations, which may be made almost innumerable.

As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it.

We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several to Vaults and Safes, to entire satisfaction to parties interested.

KITREDGE & LEAVITT,
Pioneer Iron Works, cor. Fremont and Market sts.

SAN FRANCISCO, May 6, 1887.
I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safe Locks in every other respect, as good as any other improved combination lock which I am acquainted with.

JOHN R. SIMS,
Vault Manufacturer, Oregon street.

JACKSON, April 27, 1887.
I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:
1st.—Because it is impossible for either burglar or expert to pick it.

2d.—The lock being constructed without a key-bolt, it cannot be blown to pieces by powder.

3d.—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.

R. COSNER.

Attested by J. C. SHIPMAN, County Clerk.

JACKSON, April 27, 1887.
The undersigned, Treasurer of Amador County, do hereby certify, that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's Safe. I have no fear of any burglar gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe every few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.

OTTO WALTHER.

Attested by J. C. SHIPMAN, County Clerk.

CALIFORNIA LOCK ARCADE.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Powder and Burglar Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the Press several months since. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable claims asserted in favor of the Lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly first fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.—[Mining and Scientific Press, Sept. 29, 1886.]

They are the only SAFE lock ever invented. Every State and County Treasury vault, and every bank and business place should have one.—[Amador Ledger.]

This is a lock in which a series of rotating tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair.—[Sacramento Union.]

We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar Proof Lock to be the most reliable lock constructed.

F. MARK & C. EISEL,

No. 15 Post street.

REFERENCES:
R. COSNER, Sheriff.
O. WALTHER, Treasurer.
W. JENKINS,
C. L. INGALLS, Supervisors.
L. MCCLANE,

Any good blacksmith can put this lock on safe doors. Boxed or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be.—[See page 80 in Pacific Coast Directory.]

A deaf or blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.
19v14ny11&1s,1am

MOSHEIMER'S

Pioneer Mining School,

ASSAY OFFICE

—AND—

Metallurgical Works,

SAN FRANCISCO.

Having established the first Practical Mining and Metallurgical School in the United States, I would call the attention of gentlemen who may wish to obtain a practical knowledge of Chemistry, Metallurgy, etc., to the fact that I am now prepared to teach the following branches:

1.—Assaying of Ores, Metals, and other Mineral Substances.

2.—Metallurgy of Gold, Silver, Copper, Lead, etc., by Smelting, Amalgamating, Lixivation, etc.

3.—Gold Extraction, by Chlorine Gas; also, a modified process of the same, which is cheaper and quicker than the processes usually employed.

4.—Concentration.—Dressing of Ores.

5.—Construction of Furnaces, in which any kind of fuel may be used for Smelting, Roasting, etc., as well as the erection of any Machinery or Apparatus required in Metallurgy and Technology.

6.—Technology, or Chemistry as applied to any special branch of Manufacturing.

By my Practical Mode of Teaching, any person of ordinary ability can learn to assay Ores in three lessons, and the working of all the ordinary and refractory ores in a few weeks.

Gentlemen of almost every profession, who, within the last two years have graduated at my establishment, will bear testimony that from my instructions they have learned more in a few weeks than they ever expected to learn.

My charges are from \$50 to \$200.

Ores of every description assayed and worked

JOSEPH MOSHEIMER,

Pr. Chemist, Metallurgist, C. E., etc.

Office, 323 Montgomery street. Works, 2,005 Powell street. Svl6-3moov

Mineral Land Law Blanks
FOR SALE.

We are prepared to furnish any of the following blanks used in securing patents for lands under the National Mineral Land Act of 1866:

I. Applicants' Declaratory Statement.
II. Diagram, Description of Diagram and Boundaries, and Notice.

III. Register's Order for Publication—with Notice.

IV. Deposition that Notice has been Posted.

V. Application for Survey Etc.

Prices.—Single blanks, 10 cents; 75 cts per dozen; \$4 per hundred—postage paid.

Pamphlet containing the Law and the Instructions of the General Land Commissioner, post paid, 25 cts. Address DEWEY & CO.,

Mining and Scientific Press, San Francisco.

National Mineral Land Law, Instructions,
Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & CO., office Mining and Scientific Press, San Francisco.

Mechanical Drawings.

Persons wishing Mechanical Drawings can obtain the services of competent draughtsmen, by applying to this office.

New Mining Advertisements.

Adella Gold Mining Company, Rock Creek,
Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of February, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 429 Pacific street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixth (6th) day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the thirtieth (30th) day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. C. TAYLOR, Secretary.

Office, 429 Pacific street, San Francisco, Cal. feb8

Mining Notices—Continued.

Arizona Consolidated Mining Company, Earle-
District, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-third day of December, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Z B Heywood.....	170, 219, 220, 245	387 1/2	\$193 75
W B Heywood.....	245	5	0 00
Simon Somers.....	44	25	12 50
Hull Hanson.....	225	5	0 00
Willard Hodges.....	129, 166, 211	65	27 50
Mary C Leonard.....	238	10	5 00
L A Austin.....	237	10	17 50
J B Moore.....	57	10	5 00
A F Collins.....	236	65	32 50
Mrs A M Pelton.....	44	5	2 50
Isaac Sanpost.....	121, 273	16	8 00
A Barlow.....	247	5	2 50
J B Stevens.....	257, 258, 259, 291	70	35 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction rooms of Olney & Co., No. 418 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. W. BUNNELL, Secretary.

Office, No. 611 Clay street, San Francisco. Jan1

Cardillera Gold and Silver Mining Company,
Chihuahua, Merelles Mining District, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Clouster, F.....	40	5	0 00
Jones, B. J.....	45	5	0 00
Theriot, T. A.....	28	62	62 00
Farnham, John.....	53, 142	40	40 00
Gray, George.....	270	25	25 00
Dickson, John.....	137	21	21 00
Dickson, John.....	167	5	5 00
Barris, Alfred.....	135	5	5 00
Harris, Alfred.....	137	5	5 00
Kelly, P. M.....	190	3	3 00
Kelly, P. M.....	226	2	2 00
Voorhes, A. F.....	223	6	6 00
Johnson, John.....	214	5	5 00
Frisby, W. E.....	266	10	10 00
James Welch.....	100	13	13 00

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Monday, the seventeenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY R. REED, Secretary.

Office, 321 Washington street, San Francisco, Cal. feb1

Chilpaneca Mining Company—District of Ures,
Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 318 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, 318 California street, up-stairs, San Francisco. Jan25

Din Padre Gold and Silver Mining Company,
Alamos, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of January, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, corner Broadway and Battery streets, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the eleventh day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. C. McCOMB, Secretary.

Office, corner Broadway and Battery streets. Jan1

Hansena Copper Mining Company, Lucania;
Low Divide District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of January, 1868, an assessment of seventy-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 209 Market street, San Francisco. Any stock upon which said assessment shall remain unpaid on the fourteenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the second day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

S. S. SWEET, Secretary.

Office, 609 Market street, San Francisco. Jan18

Hupe Gravel Mining Company—Lucania
of Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of January, 1868, an assessment (No. 20) of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to David Wilder, Secretary, at the office of the Company, No. 633 Kearny street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventeenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.

Office, No. 633 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. feb1

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

La Blanca Gold and Silver Mining Company,
District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the second day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
1 Alexander.....	224	1	\$2 50
C B Richard & Boas.....	222	45	130 00
Benjamin Fisher.....	354	1	2 50
Benjamin Fisher.....	354	1	12 50
Louis Levy.....	231	1	12 50
Louis Levy.....	341	1	2 50
Louis Levy.....	395	4	10 00
Isaac Michels.....	375	4	12 50
H Newman.....	324	2	5 00
R Newman.....	433	10	25 00
Richard Phokney.....	113	6	15 00
Richard Phokney.....	386	12	30 00
Conrad Stolz.....	87	10	25 00
Conrad Stolz.....	210	4	10 00
Henry Holm.....	385	5	12 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

W. M. STEVENS, Secretary Pro Tem.

Office, Nos. 312 and 314 Front street, San Francisco. Jan1

Kearsarge Mining Company, Kearsarge
District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 413 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. Jan25

Lady Bell Copper Mining Company, Law
Mining District, Del Norte County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of January, 1868, an assessment of fifteen cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at 10 J. K. Johnson, at Crescent City. Any stock upon which said assessment shall remain unpaid on the tenth (10th) day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

B. P. WILKINS, Secretary.

Office, 648 Market street, San Francisco, Cal. Jan1

Mount Tenabo Silver Mining Company—
Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1868, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 425 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twelfth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Office, 425 Montgomery street, San Francisco.

P. S.—An allowance on the above assessment of three per cent. will be made on all payments prior to the 31st inst. By order of the Board of Trustees.

Jan1 R. N. VAN BRUNT, Secretary.

Nuestra Señora de Guadalupe Silver Mining
Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third (3d) day of January, 1868, an assessment (No. 30) of one dollar (\$1) per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Prager, at the office, No. 210 Post street, or to the Treasurer, A. H. MELMANN, at his office, No. 637 Washington street, San Francisco. Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the third day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PRAGER, Secretary.

Office, No. 210 Post street, San Francisco, Cal. Jan1

Oxford Beta Tunnel and Mining Company, Es-
meralda District and County, State of Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the eighteenth (18th) day of November, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C G Heath.....	147	10	\$5 00
C G Heath.....	148	10	5 00
C G Heath.....	149	10	5 00
C G Heath.....	152	10	5 00
C G Heath.....	186	10	5 00
C G Heath.....	212	10	5 00
H Stickney.....	228	5	5 00
H P Stickney.....	248	5	2 50
H P Stickney.....	249	5	2 50
A Hinds.....	212	50	25 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-sixth day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Wednesday, the twelfth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

GEO. H. PECK, Secretary.

Office, 212 Clay street, San Francisco. Jan25

Rattlesnake Gold and Silver Mining Compa-
ny, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 318 California street, San Francisco. Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth (16th) day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, 318 California street, Up-stairs, San Francisco. Jan25

Rippan Gold and Silver Mining Company—
Location of Works: Silver Mountain Mining District, Alpine County, State of California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the seventeenth day of December, 1867, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Cahalan.....	1	10	\$5 00
M C Owens.....	2	10	5 00
M C Owens.....	49	15	7 50
C L Gilbert.....	3	5	2 50
C L Gilbert.....	39	45	22 50
Thomas Taylor.....	5	10	5 00
J Bunting.....	7	5	2 50
James McNamee.....	8	10	5 00
William DeGraft.....	10	8	4 00
James McNamee.....	12	5	2 50
James McNamee.....	13	5	2 50
J L Cullen.....	22	5	2 50
Samuel Williams.....	24	10	5 00
William McGill.....	25	5	3 00
Chas Kather.....	27	12	6 00
C E Gibbs.....	28	10	5 00
John Bots.....	29	10	5 00
Heiman Leiman.....	31	10	5 00
Chas H Stokum.....	32	5	2 50
A W Eckel.....	33	10	5 00
Thomas Martin.....	37	40	20 00
A Eckard.....	38	5	2 50
William P Smith.....	50	5	2 50
William P Smith.....	51	5	2 50
William P Smith.....	52	5	2 50
George Patterson.....	53	5	2 50
George Patterson.....	54	5	2 50
Samuel S Robinson.....	55	5	2 50
Thomas Gray.....	57	10	5 00
D E Swinerton.....	59	5	2 50
Jacob Strublin.....	59	10	5 00
C Kirby.....	60	10	5 00
Jacob Jetter.....	61	12	6 00
M Sarah Winnie.....	63	10	5 00
F M Ellis.....	65	5	2 50
F M Ellis.....	66	5	2 50
M Marks.....	67	5	2 50
John Smith.....	68	10	5 00
William Maloney.....	69	10	5 00
T D Scott.....	70	10	5 00
H D Scott.....	71	55	27 50
Myr Shine.....	72	20	10 00
John Maloney.....	73	10	5 00
James Gibson.....	75	5	2 50
B Curran.....	76	100	50 00
John Bagnell.....	77	5	2 50
J Farmer.....	78	5	2 50
Edward Campbell.....	79	25	12 50
T C Riddell.....	112	10	5 00
T C Riddell.....	113	10	5 00
O C Halvorson.....	120	10	5 00
Thomas Craigie.....	129	20	10 00
Edward Keele.....	131	10	5 00
John Maloney.....	133	10	5 00
Undrawn Stock.....	811	40	50 00

And in accordance with law, and an order of the Board of Trustees, made on the seventeenth day of December, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Saturday, the eighth day of February, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

P. CARROLL, Secretary.

Office, No. 87 Stevenson street, between First and Second, San Francisco. dec21

Postponement.—The above sale is hereby postponed until Thursday, the fifth day of

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference, as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
141 San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works.
San Francisco, Aug. 29, 1887.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

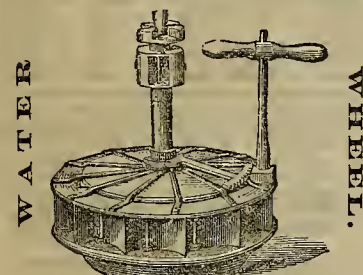
-BY-

WM. P. BLAKE,
Corner First and Mission streets, or Box 2,077
341st SAN FRANCISCO.

DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND PLACER MINERS, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address
Dr. J. B. BEERS, San Francisco,
Per Wells, Fargo & Co's Express.

11v15 6m

LEFFEL'S
American Double Turbine

THESE WHEELS, UNEQUALED AND UNRIVALED IN the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc., etc.

CALIFORNIA REPRESENTS—E. Stoen, Folsom; O. Simmons, Oakland; (Mill at Cherry Lake); Morgan Coville, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular to

KNAPP & GRANT,
Agents, San Francisco.

26v13-1yq 310 Washington street, San Francisco

NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working, as goods require no slinging or landing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine depending upon the same.

VILCAN IRON WORKS CO.,
By Joseph Moore, President.

JOSEPH MOORE.

21v15 1st

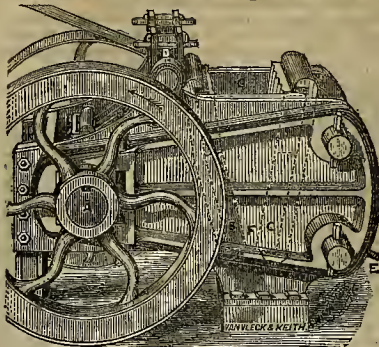
HUNGERFORD'S
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 1st **MORGAN HUNGERFORD.**

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENTED IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertiser is enabled to offer these machines to the public at the following low terms:

No. 1—Or 10 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price..... **600**
No. 2—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour..... **850**
No. 3—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour..... **1,200**

EXPLANATION OF THE ABOVE ENGRAVING.

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the link or radius bar. E represents the bolts for regulating the opening. P, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 23, 1886.
JAMES BRODIE, Esq., San Francisco—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which is entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
R. P. JOHNSON,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1884. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 25th, 1886.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1886.

JAMES BRODIE, Patentee, San Francisco.
CHARLES RADCLIFFE,
Express Building, 402 Montgomery street, San Francisco.

12v13 1st

C. F. TRAVIS,

Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

PORTABLE

MILLS.

Agent for

Dufour & Co's

Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory. **C. F. TRAVIS.**
5v16 1st 109 Mission street, San Francisco.

PATINSON'S
HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction of the same, and that no person has a right to manufacture or use them without his permit.

7v15 4y **THOMAS PATINSON**

A FULL ASSORTMENT OF

TWIST DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

—ALSO—

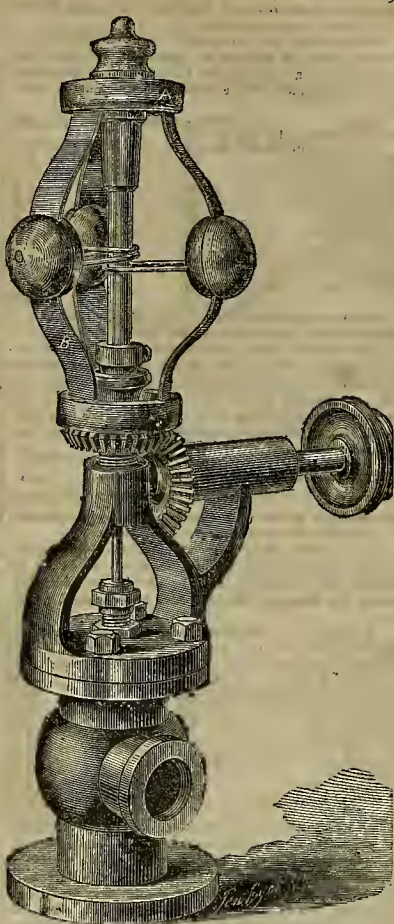
Steam Gauges, a general assortment of Hardware, Cutlery, and **MECHANICS' TOOLS,**
By **CHAS. OTTO & CO.,**
312 Bush street, San Francisco.

22v15 3m

A FULL ASSORTMENT OF

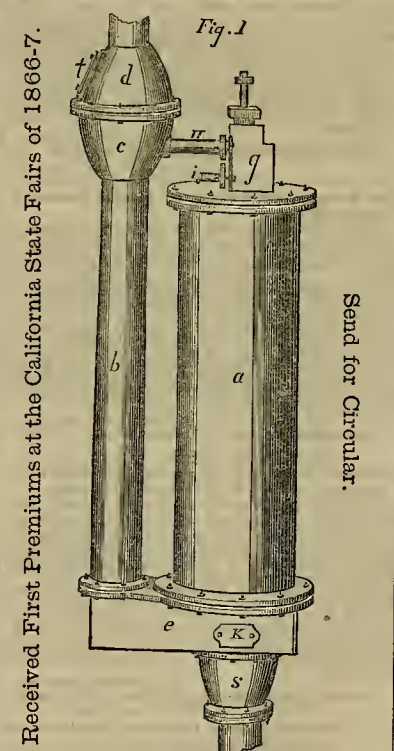
MACHINE SCREWS AND TAPS,
Constantly on hand and for sale by

22v15 3m **CHAS OTTO & CO.,**
312 Bush street.

PICKERING'S
ENGINE REGULATOR.

Warranted the Best in Existence.

Cheap and easy to attach to any Engine, old or new. Send for a Circular, to **DAVID STODDARD, 114 Beale street, San Francisco.**
12v15 2am 1q

WILCOX'S
Patent Steam Water Lifter.

Received First Premiums at the California State Fairs of 1866-7.

Send for Circular.

A Steam Pump without Engine, Piston, Plunger or Buckets, using both the expansive and exhaust power of steam, and doing more work with the same amount of fuel, than any other Pump driven by steam power. It is applicable to either lighter heavy work, whether for mining, irrigation, or other purpose. It has been used of various capacities, from 50 to 40,000 gallons per hour, and can be made of any size required. It is not injured by sandy or muddy water. In height of lift it is limited only by the strength of the boiler used.

For further information, apply to **M. & A. WILCOX,** Proprietors, No. 19 Front Street, between 1 and J Sts., Sacramento, Cal.
25v15 2am 3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,
Etc., Shear, Spring, German, Plow, Bister and Toe Calk

Steel, manufacturers of

Mill Picks, Sledges, Hammers, Picks,
Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco
10v14 1st

An Extraordinary Invention--A
Steam Man.

The following story of a remarkably mechanical invention is told by the Newark (N. J.) Advertiser:

Mr. Zadock Dedrick, a Newark machinist, has invented a man; one that, moved by steam, will perform some of the most important functions of humanity; that will, standing upright, walk or run, as he is bid, in any direction and at almost any rate of speed, drawing after him a load whose weight would tax the strength of three stout draught horses.

The man stands seven feet nine inches high, the other dimensions of the body being correctly proportioned, making him a second Daniel Lambert, by which name he is facetiously spoken of among the work men. He weighs 500 pounds. Steam is generated in the body or trunk, which is nothing but a three-horse power engine, like those used in our steam fire engines. The legs which support it are complicated and wonderful. The steps are taken very naturally and quite easily. As the body is thrown forward upon the advanced foot, the other is lifted from the ground by a spring and thrown forward by the steam. Each step or pace advances the body two feet, and every revolution of the engine produces four paces. As the engine is capable of making more than a thousand revolutions a minute, it would get over the ground, on this calculation, at the rate of a little more than a mile a minute. As this would be working the legs faster than would be safe on uneven ground or on Broad street cobble stones, it is proposed to run the engine at the rate of 500 revolutions a minute, which would walk the man at the modest speed of half a mile a minute.

The fellow is attached to a common rock-away carriage, the shafts of which serve to support him in a vertical position. These shafts are two bars of iron, fastened in the usual manner to the front of the carriage, and are curved so as to be joined to a circular sustaining bar, which passes round the waist like a girth, and in which the man moves so as to face in any direction. Besides these motions, machinery has been arranged by which the figure can be thrown backward or forward from a vertical nearly 45°. This is done in order to enable it to ascend or descend all grades. To the soles of the feet spikes or corks are fixed, which effectually prevent slipping. The whole affair is so firmly sustained by the shafts, and has so excellent a foothold, that two men are unable to push it over, or in any way throw it down. In order to enable it to stop quickly, it is provided with two appliances, one of which will, as before stated, throw it backward from the vertical, while the other bends the knees in a direction opposite to the natural position.

An upright post, which is arranged in front of the dash-board, and within easy reach of the front seats, sustain two miniature pilot wheels, by the turning of which these various motions and evolutions are directed. It is expected that a sufficiently large amount of coal can be stowed away under the back seat of the carriage to work the engine for a day, and enough water in a tank under the front seat to last half a day.

In order to prevent the "giant" from frightening horses by his wonderful appearance, Mr. Dedrick intends to clothe it, and give it as nearly as possible a likeness to the rest of humanity. The boiler and such parts as are unnecessarily heated will be encased in felt or woolen undergarments. Pantaloons, coat and vest of the latest styles are provided. When the fires need coaling, which is every two or three hours, the driver stops the machine, descends from his seat, unbuttons "Daniel's" vest, opens a door, shovels in the fuel, buttons up the vest and drives on. On the back, between the shoulders, the steam cocks and gauges are placed. As these would cause the coat to set awkwardly, a knapsack has been provided that completely covers them. A blanket neatly rolled up, and placed on top of the knapsack, perfects the delusion. The face is molded into a cheerful countenance of white enamel, which contrasts well with the dark hair and moustache. A sheet iron hat, with a gauge top, acts as a smoke-stack.

The cost of this "first man" is \$2,000, though the makers, Messrs. Dedrick & Grosse, expect to manufacture succeeding ones, warranted to run a year without repair, for \$300. The same parties expect to construct, on the same principle, horses which will do the duty of ten or twelve ordinary animals of the same species. These, it is confidently believed, can be used alike before carriages, street cars and plows. The man now constructed can make his way without any difficulty over any irregular

surface, whose ruts and stones are not more than nine inches below or above the level of the road.

We give the above as we find it, although it looks decidedly Munchausenish.

SAD FATE OF A RUSSIAN ARCHITECT.—Albert Cavo, chief architect of the Imperial theaters of Russia, and designer of that of Moscow, on hearing, some years ago, of the intention of the government of France to construct a new opera house in Paris, devoted sixteen months in drawing the designs and plans of what he hoped would prove the eighth wonder of the world. He presented to M. Fould, then Minister of State, who, struck by the magnificence of the design, laid it before the Emperor. His Majesty not only approved of the design, but conferred the Legion of Honor on M. Cavo, meanwhile expressing his wish that the plans should be laid by till the opera house should be built. Years elapsed; when the time arrived for the erection of this temple of art, M. Cavo, on reading in the *Moniteur* that a competition would take place for the plans, telegraphed to Paris requesting that his designs might be placed amongst those of other architects. The reply was that they could not be found. The poor man wrote successively to M. Fould, to the Duke de Morny, and to the Russian Ambassador, imploring them to use their influence to have the plans searched for. But in vain; the designs were lost. On the news reaching him, M. Cavo was struck with apoplexy and died within a few hours.

Life safety on railroads, in our dwellings, our offices, our public buildings, and on the streets and rivers is becoming the grand object of social anxiety and inventive effort. All the intelligence of the time is summoned to the solution of the problems it suggests. Insecure walls, weak boilers, decrepit machinery, insufficient means of exit, rotten timber, explosive storages, etc., etc., have held a public slaughter throughout the last year. A grand uprising against them is now proposed, and it would not be a bad idea to establish mutual protective societies to accelerate reform. Strict responsibility is another element of safety that we do not doubt would help the cause amazingly.

ANTHRACITE COAL PRODUCTION.—The anthracite coal production from the several regions of this country for the past year, exceeds that of 1866 by some 50,000 tons, and aggregated about 13,000,000 tons.

WE ARE NOW OFFERING OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of

ALL THE LATEST STYLES
BOTH OF MATERIAL AND FINISH.

A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.

J. R. MEAD & CO.,
Cor. of Washington and Sansome streets
8v10

HAYWARD & COLEMAN,
IMPORTERS AND REFINERS

Illuminating, Lubricating,

PAINT OILS!

CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
TANNERS', NEATFOOT, BOILED AND RAW
LINSEED, CASTOR AND CHINA NUT.

SPIRITS OF TURPENTINE & ALCOHOL

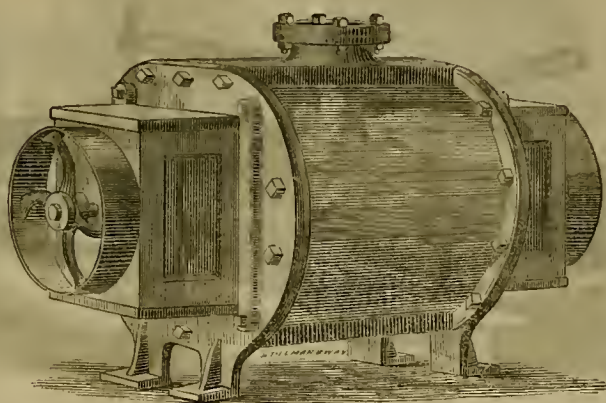
NOTE.—We would specially call the attention of Mill owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning oil.
A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!
An elegant and complete assortment on hand.
19v13-3m
414 Front street, San Francisco.

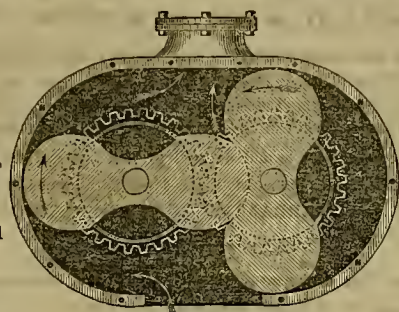
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

KEEP, BLAKE & CO.,
Globe Iron Works, Stockton, Cal.

BLAKE'S PATENT QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and they will be held responsible in law and in damages. Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages. **BLAKE & TYLER,**
Agents for the Pacific Coast.
14v11

International Hotel,
JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are new and in good order, and the Rooms well ventilated. The Table will always be supplied with the best in the market.
Prices varying from \$1.50 to \$2 per day for Board and Room.
FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

Terms belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for 50 cents
21v12
F. E. WEYGANT, Proprietor.

To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE in Mining and doing business connected with Mining Operations, offers his services to parties wishing to purchase mines, to examine and report upon them, to buy, report upon the titles of any mine offered for sale, and to transact any business connected with mining operations in this District. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address: **JAMES DELAVAN,**
Lono Pine, Inyo Co., Cal.
4v16f

A FULL ASSORTMENT OF
Molders' Tools,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco.
22v15-3m

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.
PARTIES WISHING TO PURCHASE WILL SAVE 50 percent by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco.
21v15-3m

ELLERY'S Patent India Rubber Paint and Cement

Is composed of India-rubber and other gums, dissolved in pure linseed oil, mixed with the various coloring matters, and ground in any color. We paint Wood, Brick, Metal, Cloth, etc. It is a superior Marine Paint. Will not rot, peel, blister or crack in any climate. Fifteen hundred Fish Vessels at Gloucester, Mass., use it as superior to other paints. We refer to Steamers America, Senator, Paul Pry, Julia, etc., and W. K. Van Allen, S. C. Bogbee & Son, Tubbs & Co., C. W. Thomas, Sidney Johnson, Dr. Newton, Gen. Conoor, Stockton, H. L. Davis, Jas. Lick, J. P. Pierce, Esq., and others. Filbert Street School House, two coats on redwood, equal to three coats lead. One hundred pounds paint equal in bulk to two hundred pounds lead. Cementing and painting new or old Tin or Metal Roofs. We first cement around fire walls and skylights all holes and cracks, then apply a good coat of paint. A good, clean, tight roof is certain. Price, from one to three cents per square foot, according to size and condition of roof.

New Cloth Roofs put on, saturated with liquid rubber; then painted at nine cents per square foot. We use none but the best materials and pure linseed oil. No lead turpentine; neither asphaltum or coal tar.
Also, for sale, "Submarine Rubber Varnish," \$5 per gallon; any color. We will apply to Vessels' Bottoms, or furnish at \$5 per gallon.
23v15f

Steam Pumps,
FOR DRAINING MINES OR ELEVATING WATER TO ANY HEIGHT.
PICKERING'S GOVERNORS
For Steam Engines.
Giffard's Injectors,
For Feeding Boilers.

STODDART'S IRON WORKS,
Beale Street, San Francisco.
23v12-3m

PACIFIC FILE, REAPER AND MOWER SECTION
Manufactory,
No. 52 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.
23v15-3m
DURNING & KENNEY, Proprietors.

Notice to Miners;
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE M. Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.
8v13-17
Stove Store, No. 125 Clay street, below Davis.
M. PRAG.

Metallurgy.

BOALT & STETEFELDT,
Metallurgists and Mining Engineers
AUSTIN, NEVADA.
Western Branch of ABELEBBO & RAYMOND, No. 90 Broadway, New York.
11v11

O. W. MAYNARD. J. H. TIEMANN.
MAYNARD & TIEMANN,
Mining Engineers and Metallurgists,
240 Pearl street, New York.
—AND—
CENTRAL CITY, COLORADO.
19v12-1y

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
SAN FRANCISCO FOUNDRY,
Fremont street, near Mission, San Francisco.
Highest price paid for choice lots of Ores, Sulphurets, Arsenides, Selenides, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

Parties desirous of Taking
A COURSE OF INSTRUCTION
—IN—

CHEMICAL ANALYSIS,
THE ASSAY OF ORES,
And the Use of the Blow-pipe,
OR ANY PART OF SUCH COURSE,
May apply at this Office.

23v Pupils will have the advantage of a Complete Laboratory.
19v16

BRANCH
OF THE NEWARK, N. J.,
Metallurgical Works.

BALBACH & BROTHER,
No. 315 Howard Street, bet. Fremont and Beale, San Francisco.

Assays of Gold, Silver, Copper and Lead Ores.

Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, in desired, by the Chlorine Process. Also, Jewellers' and Bankers' Sweepings.

Consignments of Gold and Silver Ores solicited.

Refining of Bullion at usual rates.

23v Agents for Ed. Balbach's Improved Process for Separating Silver and Gold from Lead.
25v16-3m

JOHN TAYLOR & CO.
IMPORTERS,
AND DEALERS IN
ASSAYERS' MATERIALS,
Druggists' & Chemists' Glassware,
Photographic Stock, Etc.
512 and 514 Washington Street,
SAN FRANCISCO.

WE are receiving direct from MESSRS. LADD & OERTLING (London) and BEEKER & SONS (Antwerp, Belgium) their superior

ASSAY AND BULLION BALANCES,
And from France and Germany, as well as the Eastern States, FURNACES, CRUCIBLES, MUFFLES, BLOW-PIPE CASES, GOLD SCALES, CHEMICAL GLASSWARE, and every article required for ASSAY OFFICES, LABORATORIES, etc. We have given this branch of our business particular attention, to select such articles as are necessary in the development of the mineral wealth of this coast. A Full Assortment of DRUGGISTS' GLASSWARE and DRUGGISTS' SUNDRIES, ACIDS and CHEMICALS, constantly on hand.
San Francisco March 6, 1865.
11v10-1f

MANHATTAN
Metallurgical and Chemical Works,
Nos. 552 and 554 West Twenty-eighth st.,
NEW YORK.

Assays of Gold, Silver, Copper and Lead Ores.

SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF Ores, Minerals, Clays, Waters, and General Commercial Products of all kinds.
Tests of Gold, Silver, Copper and Lead Ores, by Smelting, in quantities of fifty pounds to five, ten or fifty tons.
Consignments of Ores solicited.
Refining of Bullion at usual rates.
Founders and Metal Workers furnished with alloys of every description.
Parties requiring plans and specifications for the erection of Smelting Works, can be supplied, and the actual process while working shown.
Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical Products.
Superintendent, Mr. WILLIAM WEST, formerly of Swansea, Wales.
For engagements and terms, apply at the office of
SECOR, SWAN & CO., 66 Broadway,
Postoffice Box 1412
15v15-6m

Just Published.

THE PHILOSOPHY OF MARRIAGE, BEING FOUR IMPORTANT LECTURES ON FUNCTIONS AND DISORDERS OF THE Nervous System and Reproductive Organs, to be had by addressing and enclosing twenty-five cents, postage stamps, to Secretary PACIFIC MUSEUM OF ANATOMY, Montgomery street, San Francisco.
2v13-1v

Manzanita Pipes!

WHOLESALE AND RETAIL—SALESDROOM, No. 55 Third street, near Mission. Factory, No. 10 Stevenson street, near First, San Francisco. These Pipes are manufactured from the best Mountain Manzanita, as sweet as Meerschaum.
21v15-3m
JACKSON & SPAULDING.

MR. TOMLINSON, of London, has been experimenting to show that the storm-glass is not acted upon by light, electricity, wind or rain, but solely by the variations of the temperature.

LITHIUM.—The oxide of lithium was discovered by a Swedish chemist in 1817 while analyzing a rare mineral called petolite. Lithia, the name of this oxide, is so called from the Greek word *lithos*, a stone. It was first found in the minerals called petoline and spodumene, which were found in the iron mine of Uto, in Sweden.

GLASS ENGRAVING.—Glass engraving is said to be done with a solution of fluoride of calcium in hydrochloric acid, without the danger attending the use of fluorine acid, and equally well.

HO TEAMSTERS!

CONTINUE TO

USE HUCKS & LAMBERT'S

CELEBRATED

H & L Axle Grease,

To which you have given so decided a preference for the last

FOURTEEN YEARS,

It is the only reliable article

IN THE MARKET

Every care will continue to be used to sustain the high reputation the H & L Axle Grease, has so long and justly attained.

Be sure and ask for the H & L brand, and see that the

TRADE MARK H & L

IS ON THE COVER OF THE PACKAGE

NONE OTHER IS GENUINE.

FOR SALE IN EVERY STATE IN THE UNION.

6v16c0w1f

CHICKERING & SONS'



PIANOS

Received the

FIRST PREMIUM

(Gold Medal)

And Decoration of Legion of Honor, at the Paris Exposition.

KOHLER, CHASE & CO., Agents,

Corner Clay and Sansome streets, San Francisco.

TRUESDELL, DEWEY & CO.

BOOK AND JOB PRINTERS,

Mining and Scientific Press Office,

NO. 505 CLAY STREET,

SAN FRANCISCO.

CARDS,

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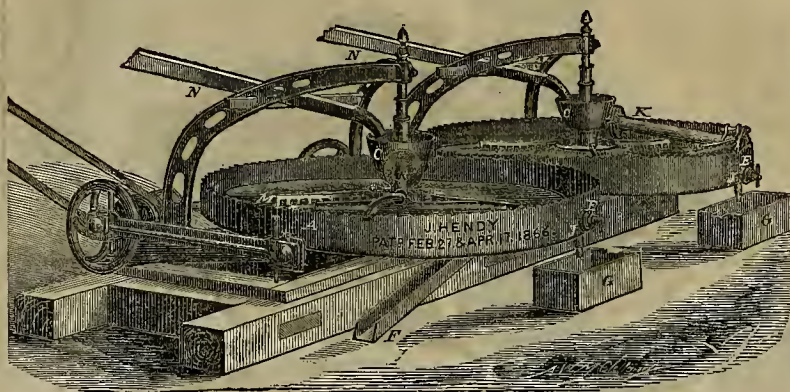
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Acetic Acid,
Acids Chemically Pure,
Nitrate of Silver,
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HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:

FIRST—In setting up, set the pan, A, level by the inner rim, near its center.

SECOND—While in operation, keep the Pan, A, about half full of sulphurets.

THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.

FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (7 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (6 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO., Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M & M. CO. (3 Concentrators).....	Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Soaoa, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco.

Yours, very truly,

LOUIS JANIN, JR.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,

Union Foundry, San Francisco.

W. T. GARRATT, City BRASS AND BELL FOUNDER.



Cor. Mission and Fremont sts.,

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Manufacturer of Brass, Zinc, and Anti-Friction or
Babbet Metal Castings:

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TAVERN AND HAND BELLS AND GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Liquor, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder, and Copper Rivets, &c. Oange Cocks, Cylinder Cocks, Oil Globes, Steam Whistles.

HYDRAULIC PIPES AND NOZZELS

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Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thank for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness:

GEORGETOWN, January 22, '67.

Messrs. Dewey & Co.—Sir: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Washing Dyes." It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf.

Very truly yours, M. A. WOODSIDE.

Economy in Advertising.—The Mining and Scientific Press is the best and most economical mining advertising medium in this city. Our terms are less than one-half the rates now charged by daily newspapers, and the mining community are beginning to appreciate our reasonable rates of advertising. The Press contains proportionally a larger amount of mining advertising than any other paper on the Pacific coast. Its character renders it the proper journal for the concentration of mining patronage.

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A Journal of Useful Arts, Science, and Mining and Mechanical Progress.

DEWEY & CO., PUBLISHERS,
And Patent Solicitors.

SAN FRANCISCO, SATURDAY, FEBRUARY 15, 1868.

VOLUME XVI.
Number 7.

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LANDS ON THE PACIFIC RAILROAD.—A very large portion of the finest agricultural lands of the State are along the lines of the Central and Southern Pacific Railroads. Either from a misconception of the Act of Congress which granted to the railroad companies the odd numbered sections for a width of twenty miles on each side of their track, or owing to the faulty wording of the said Act,—compelling him, if strictly rendered, so to do,—the Secretary of the Interior decided that both the odd and even sections were by its terms withdrawn from preemption and sale. A sensation was created by this decision, as may well be believed; for it is not, of course, to be supposed that such was the intention of the Act. It has been supposed that the sections numbered even would be open to settlers at \$2.50 per acre; thereby bringing in the same revenue as if all were priced at \$1.25; and the railroad companies have therefore held their portion at that price. The telegraph informed us on the 8th inst., that the Lower House of Congress has, at the instance of one of our Representatives, passed a bill restoring to market the even sections. It is to be hoped that it will become a law. Immigration would thereby be encouraged, and a large amount of taxable property created.

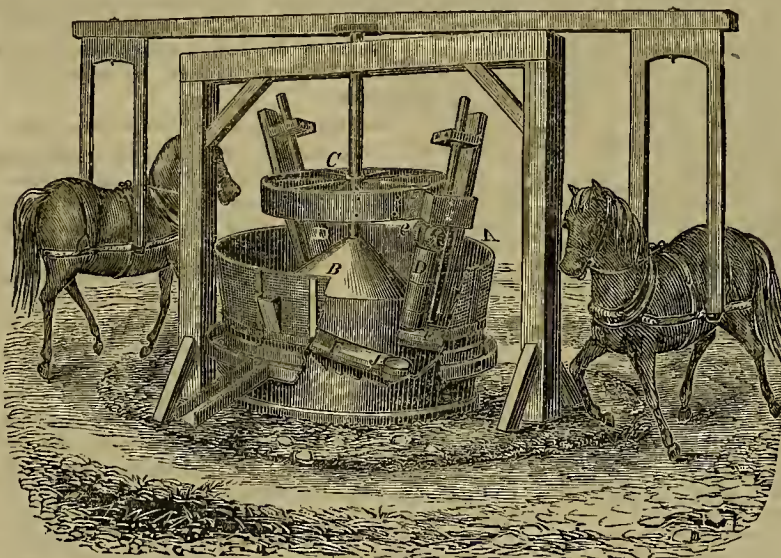
MAP OF THE REGION ADJACENT TO THE BAY OF SAN FRANCISCO.—The new map just issued by the State Geological Survey, is a most perfect affair. It is on a scale of two miles to an inch, and is about three feet nine inches in length and two feet nine inches in width,—exhibiting the region included between Napa and Sonoma on the north, and a point about 12 miles below New Almaden on the south. A meridian line drawn at about the same distance east from the same point would be the boundary of the map in that direction. The Coast, Rancho, Township and Section lines are from material furnished by the U. S. Coast Survey and the U. S. Surveyor General's office; and the topography chiefly from original surveys by C. F. Hoffman. The engraving is clearly and distinctly executed. It is an elaborate and beautiful piece of work, and reflects the greatest credit upon the Survey.

Hughes' New Quartz Battery.

We give herewith an illustration of a quartz battery, quite novel in construction, and the invention of Mr. Seymour Hughes, of 215 Third street, San Francisco. The object sought by this invention is to provide a cheap, compact and efficient machine that will combine the work of both stamps and pans. The inventor, after some two years of experiments, and several weeks of actual working trial of his machinery, is quite sanguine that he has accomplished his purpose, and he is now ready to demonstrate this fact to the mining public. He feels fully confident that he has provided

ordinary battery, is here most judiciously applied to grinding the ore.

A battery six feet in diameter, will contain nine stamps, or can be used with a less number; as is evident from the engraving, where only two are seen. A battery of five stamps, rigged for horse power, will cost but \$700; or \$750 rigged for steam or water power. It has been found by actual practice that two horses can run one of these batteries containing five stamps, weighing 400 pounds each, dropping nine inches, and having four drops in the circle. The wear of the shoes and track is true and uniform, and their bearing one upon the other is peculiarly favorable for its results as a grinder



HUGHES' NEW QUARTZ BATTERY.

for the prospecting miner, in particular, a mill fully equal to his requirements, one that can be run by horse, steam or water power—one that contains the least amount of metal in proportion to its capacity for work, and one which can be purchased and put in position for work cheaper than any mill now in use which will do a like amount of work.

The chief novelty of this machine consists in the fact that it is a grinding as well as a stamp battery. The crams and canchast usually employed in a stamp battery, are dispensed with in this invention, and the frame work to which the stamps, D, D, are attached, is made to revolve, so that the faces of the stamps are forced over a series of inclined planes, F, F, each plane raising the stamp so as to admit of a drop of nine inches from the top of one plane to the foot of the next succeeding one. A die, J, is placed at the foot of each plane to receive the drop of the stamp. The passage of the stamp up the incline enables it to accomplish a large amount of trituration, thus doing away with all necessity for subsequent pan grinding.

By this arrangement for lifting the stamps, it will readily be seen that the friction involved in accomplishing that purpose in the

and amalgamator. The action of the machine is such that the stamps rotate as they revolve. The inclined center, B, and, below the screens, A, are provided with copper amalgamating plates for the collection of amalgam by the splash of the stamps. The total weight of all the work about a 5-stamp mill will not exceed 5,000 pounds, exclusive of stamps, which may vary from 250 to 400 pounds each. The largest piece will not weigh over 500 pounds.

Mr. Hughes, the inventor, is now engaged at the Miners' Foundry building one of his 5-stamp batteries in the very best shape which his experience can suggest.

By a singular coincidence, Mr. E. J. Wilson, of the Delta Quartz Mining Company, at Fairplay, El Dorado county, has also been at work for a year or more upon the very same idea as that which has engaged Mr. Hughes, and has actually constructed a mill of sixteen stamps, on precisely the same plan. The two mills are absolutely identical, in every part of their construction; and yet neither had any knowledge of the experiments of the other, until a newspaper notice of Mr. Hughes' mill attracted the attention of Mr. Wilson. Mr. H. claiming to have been the first to commence his experiments, and to make his

application for letters, is, if so, thereby secured in the monopoly of the manufacture and vending of these mills. Mr. Wilson of course will continue to run his mill, by virtue of his right as its inventor. He has already crushed about 400 tons of rock with it, and reports that he can crush nearly twice as much rock with this as with the ordinary stamp battery—the same amount of power being employed in both. He also claims that he can obtain more gold from the same rock. The latter advantage, whatever it may be, is of course due to the large amount of trituration which takes place in the battery—the battery in fact performing the work of both stamps and pans. The effect of the sliding motion of the stamp, as it feeds, and subsequently rises, is very perceptible to the eye, when the mill is at work dry; full as much, if not more work appears to be done while the stamp is traveling up the incline, as is accomplished by the simple act of dropping. By working it as a float battery, on the principle elsewhere described in this issue, any desirable degree of fineness can be obtained.

This invention is certainly novel in its character, and so far as we can see, is eminently promising in its effectiveness. We shall watch its practical application with much interest, and endeavor to report results truthfully.

DEATH OF SIR DAVID BREWSTER.—A London telegram of date February 11th, announces the death of this eminent scientist, at the age of eighty-six. His name is among the noted ones of a former generation. He was born at Jedburgh, Scotland, in 1781. He received the degree of M. A. from the University of Edinburgh in 1800; the degree of LL.D. from the University of Aberdeen in 1807; and was elected a Fellow of the Royal Society of Edinburgh in 1808. On the death of Berzelius, he received the distinguished honor of an election as one of the eight Foreign Associate members of the National Institute of France.

Sir David Brewster is especially known for his discoveries in reference to the polarization of light, and his other contributions to the science of Optics. He invented the kaleidoscope and the stereoscope,—and constructed lenses of superior excellence for light-houses. He was a contributor to several scientific publications, the author of several scientific works, and the editor of the *Edinburgh Journal of Science*. The *Edinburgh Encyclopaedia* is a monument of his industry. Upon this work he spent the greatest part of twenty-two years. He was the founder of the British Association for the Advancement of Science, and one of its most active members throughout the whole of his long life. He received an annual pension from the Government; and his last invention, the stereoscope, made at the age of 67, was probably a source of considerable profit.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER TWELVE.

I have considered it most convenient to place more prominently the losses according to the mode employed, which are attendant on the reduction of gold and silver ores, before dwelling upon the charges consequent on such diverse operations, because in many cases the question of advantage or disadvantage resulting from the employment of any particular process will frequently depend upon the question of the more or less perfect extraction of the hullion from the ore. In simple comparisons, as when the charges for reduction prove equal, this proposition must be clear to any one; when, however, the charges are higher in one case than another, as would be if either amalgamation by harrel, or reduction by means of Augstin's or Ziervogel's modes is contemplated to be adopted in place of the Washoe pan mode, it becomes a serious question, at what point does the advantage of one mode commence, or the other terminate.

Having roughly reviewed the probable losses resulting from non-extraction sustained by various modes, and having approximately shown that on a ton of prepared mattes or ores reduced by the barrel, brine and hot water modes, the losses so arising, even though such mattes or ores originally contained hullion to the amount of from \$100 to \$400 per ton, and upward, do not exceed \$15 per ton, while it amounts to more than that sum on a \$50 ore by the Washoe method, and on a \$400 ore or matte would sum up to \$200 per ton, it consequently follows that the methods first noticed are superior in this respect to the Washoe mode—in the instance last named of not less than \$185 per ton, which difference would be a gross gain on this account to that amount for the one series over the pan mode, and a nett gain, minus the extra charges consequent on the employment of the harrel, brine, or hot water methods; the chief of which will be found in the department known under the general term,

ROASTING.

Of all the processes connected with the reduction of gold and silver ores, the most expensive is that pertaining to roasting, and is at the same time most difficult of satisfactory performance on an economical scale. Plattner has written a fair sized volume on this important subject; as, however, the experiments detailed by him are almost exclusively on a small scale, and often relating to the employment of hydrogen or steam as accompanying agents, which to some extent will be expensive, renders Plattner's volume, though extremely valuable as pointing out the proper course to pursue under varied circumstances, readily to be understood by a thorough expert, is perfectly bewildering to an ordinary reader. Having had the opportunity of studying this subject on a large scale, in almost every form and variety of ore, and having also practiced no inconsiderable number of these methods with mixed ores, in almost numberless varieties, more or less associated with antimony, arsenic, sulphur, gold, silver, lead, copper, iron, zinc, and occasionally tin or bismuth, I am enabled to hear practical witness as to the numerous difficulties, and can emphatically state, that in order to detail and make tolerably clear to the intending learner the various shoals and quicksands that environ the process with some complex ores, would form even a larger volume than that furnished by Plattner, many of which however are distinctly alluded to by that learned metallurgist.

For the present, by way of illustration, however, I shall confine myself to a difficulty of the very simplest character, especially as it is one on which ocular proof can be obtained in California more readily

than any other. Allusion is here made to Plattner's method of roasting concentrated or naturally highly charged sulphureted gold ores (pyrites) prior to chlorination, in which it is well known how much more difficult it is to drive off the last ten per cent. of sulphur than the ninety that had previously been dissipated. The case just alluded to is, however, simplicity itself as compared with most of the other complexities alluded to, not only as respects the actual preliminary manipulation, but also as regards the injurious influences which, under certain circumstances, may supervene consequent on imperfect desulphurization.

On no subjects connected with the metallurgy of the precious metals, has so little advance been made during the last century as those relating to the formation of constructions for roasting ores, and accompanying devices for regulating the temperature and supply of oxygen therefor. It is one that has occupied a very large share of the writer's attention, particularly so during the last four or five years, for previous to that time alluded to having, as he believes, acquired a knowledge of all the methods that are now employed, or probably may hereafter be found of any very great future economic advantage in the reduction of gold and silver ores.

As the above remarks were being penned, I had placed in my hands a copy of Mr. Kustel's recently published work, in which I am glad to see that large furnaces, extended greatly in their length, are recommended. Mr. K. states that Mr. Deetken, at Grass Valley, has found it advantageous to construct such, like those employed for roasting lead ores at Pontgibaud (France), in which "the upper hearth is not above the lower, but a continuation of it, interrupted by a step-flue of seven feet ten inches in height. The upper hearth is six feet wide by thirty-nine feet in length, furnished with working doors upon each side, twelve in number." A large furnace of a somewhat similar plan was employed by me, many years ago, at Flint, North Wales, with the same object that such is now used at Grass Valley. In my own case, however, the furnace was divided into four parts, separated only by a step to each of from six to nine inches in height, and each division was from ten to twelve feet in length, thus making the entire furnace from forty to fifty feet long. The mode of making the fire-places was somewhat peculiar, and could not be explained without a drawing. The disadvantage of this kind of furnace consists in the employment of manual labor for the purpose of stirring the ore, in order to expose all portions thereof to caloric or oxidizing influences.

In this last respect, revolving furnaces, with automatic stirrers, possess advantages of an economic character very much greater than pertains to the variety of furnaces just described. There, however, I am afraid their sole advantage ends, as much greater economy of fuel will be found attendant in the employment of lengthy reverberatory furnaces of the kind above noticed, than with those of a rotary character. Besides the difference of the amount of manual labor required between the two modes is much diminished by the fact that so much larger an amount of stuff can be worked on the bed of the elongated rectangular reverberatory furnace, as compared with those of a revolving circular construction, as the latter cannot safely be constructed to work more than about one ton at a time; while, on the other hand, large rectangular furnaces may easily be constructed so as to effectually work from ten to twelve tons continuously; so that what with economy of fuel (the sulphur consumed being made in part to form a source of the caloric employed), and the quantity that can be operated upon by a single hand, will perhaps fully balance any saving that may arise from automatic agency, unless, which is a matter only ascertainable by experience on a working scale. The ore can be completely desulphureted in less time by revolving furnaces; for I can fully corroborate the experience made by Mr. Deetken, and noticed in the work of Mr. Kustel, already alluded to, that (unless at an unreasonable expenditure of fuel) "long experience in California has proved that a certain length of time—about twenty-four hours—is required to finish the roasting of one charge." Under all circumstances, the probability is that no great improvement in cheaply desulphureting ore is likely to be discovered, unless it be by the introduction of some economical mode of dissipating the last ten or twenty per cent. of sulphur which remains in the ore. The application of nitrate of potash or soda at this stage would facilitate the operation; but unless with very valuable ores, these salts would be found too expensive. Mr. Kustel's work is not only deserving of study as regards that branch of reduction immediately under

notice, but will, on perusal, be found worthy of deep attention in respect to several others, especially of those relating to the dressing of ores with the object of obtaining the valuable portion of the ore in as concentrated a form as possible. An attentive study of this work must satisfy any clear-minded reader that non-effective results must of necessity be the consequence of the hitherto and still prevailing mania of "rushing things through," as an instance of which, no better illustration can be given than the tables furnished for one year's operation by the

HALE & NORCROSS COMPANY.

By the tables noticed, for a copy of which I am indebted to Mr. H. C. Bennett, it appears that for the year ending March 1st, 1867, this company had reduced 15,639 tons of ore, the assay value of which was, for gold, \$465,290, and silver, \$822,942—total, \$1,288,132. The amount produced was as follows: gold, \$397,158; silver, \$419,819—total, \$816,977. The amount lost was, for gold, \$68,474; silver, \$403,123—or, conjointly, more than \$470,000, the average percentage of loss on the gold being fourteen per cent. and that of silver forty-eight per cent. Cost of reduction, \$14 per ton. Some instances occur where the amount of gold extracted run up from ninety to ninety-nine per cent., and in one instance the return is made of 112 per cent. on the fire assay. One return, by much the highest, for silver, gives eighty-one per cent.; but several go as low as forty-five, and some fifty-one to fifty-two per cent., remarks respecting which must be reserved to a future day.

The Mining Establishment of France.

The materials for the following notice of this establishment were taken from the *Compte-Rendu des Travaux des Ingenieurs des Mines*, and the *Annales des Mines*, by Prof. Smyth, whose account of the mining schools of Saxony and Hungary we have already given.

ESTABLISHMENT OF THE CORPS DES MINES.

The *Corps des Mines* was established by an order of Council in 1781, and was reorganized in the second and fourth years of the republic. Other regulations have been made in various subsequent years. It was made the duty of the mining engineers to make a geological and mineralogical examination of France; to guide the labors of miners and the searchers for mineral substances; to arrange the limits of "concessions," or permits, in different districts according to the circumstances therein,—for which concessions a royal *ordonnance* was then issued; to indicate the manner in which the works should be carried on; to keep watch over the safety and the solidity of the works, and give such instructions and advice as to prevent accidents; to estimate the value of the mines in order to determine the royalties due; prepare regulations in regard to drainage; to determine, by actual experiment, the safety of all steam apparatus; to give all necessary information in regard to the nature of the ground, and other points, to government commissions who are to make preliminary surveys for roads, canals, etc.; to examine, for the public and commercial security, the regulations of mining companies; and to instruct students of engineering, and prepare them for the position of master miners.

The mining engineers are thus not only scientific investigators, but advisers of the *Administration des Mines*, in whose hands is placed the actual supervision over all mining matters. Trial works are under their inspection, when carried on at government cost or that of the parishes or departments,—and sometimes when undertaken by private parties. The *Administration des Mines* is consulted upon, and watches over, researches upon parish or private grounds, for which permission must be obtained from government. A periodical inspection of workings and of machinery is required by the regulations,—also that of the daily record of progress which is kept; and all necessary instructions are given at the time of the visit. An account of the condition of things is rendered to the Prefect. The corps of

engineers publishes two volumes annually, entitled *Journal des Mines* until the year 1816, but since that time *Annales des Mines*.

THE SCHOOL OF MINES OF PARIS

was founded by Louis XVI, in 1783. At first the three years' course included lectures in winter, and in summer tours with the inspectors, or a residence in the mines. Pupils entering were required to be sixteen years of age, and to have a sufficient acquaintance with geometry, drawing and German. The mining engineers were selected from among these students. In 1795, it was changed from an elementary to a practical school, and the twenty pupils were chosen from among those of the Polytechnic School who were most proficient in mathematics. In 1802 it was removed to Pessey, in Savoy, where a lead mine was being worked by the State; and a second practical school was founded at Geislautern, in the old department of the Sarre. In 1816, after these two places ceased to belong to France, the school was reestablished in Paris. The number of students of engineering was reduced to nine; and an equal number of outside students (*eleves externes*) were admitted to the course, who received, on leaving, certificates of proficiency, as shown by the annual examinations. The management,—at first with one director,—was now placed with the council, composed of the Inspectors-General of the corps of mines, professors and the inspector of the educational department.

COURSE OF STUDY.

The course of study is under the direction of the engineers, and comprises mechanics, and the working of mines; assaying and laboratory work in general; metallurgy, mineralogy and geology. The pupils also receive instruction in drawing, surveying, and in the German and English languages. The lectures occupy from November 15th to April 15th. The course is for two years, although most pupils remain three years. The first summer is devoted to laboratory work and surveying; the second and third to the visiting of mines and furnace works. Although the lectures are not public, there are, besides those students already mentioned, from 25 to 30 free or authorized students, and a number of young Russian, American and Spanish engineers, who attend them. The collections of minerals, fossils, metallurgical and chemical products, models, and drawing of machines and furnaces, are very extensive.

SCHOOL AT ST. ETIENNE.

The Miners' School at St. Etienne was founded in 1816. It is in the midst of the rich coal district of the Loire. At first intended to educate mining captains and master workmen, it was, in 1831, so modified as to include, on the one hand a higher course than at first, and on the other an inferior one for workmen. The instruction is gratuitous; and free students are allowed to take only a partial course, at their option. Regular students are required, on admission, to be acquainted with elementary arithmetic, the metrical system, surveying, and the French language. The course is for two years; and comprises, in the first year, arithmetic, geometry, elements of algebra, trigonometry, plan-drawing, leveling, descriptive geometry and its application to masonry and carpentry, general chemistry, assaying, mineralogy and book-keeping; in the second year, courses on mechanics and machines, the working of mines, metallurgy and building. The working-class students, are required, for admission, to have passed through the ordinary primary school course. During the first year, they are instructed in weights and measures, the elements of geometry, plan-drawing and leveling, book-keeping and linear-drawing; during the second, in elementary physics, chemistry and mechanics. This school has large collections of every kind, a library, and chemical laboratory. The regular students are frequently examined, and on completion of the course, receive certificates of proficiency according to the result of the yearly competition. The school is under the direction of the Inspector-General of the mineralogical division, of which the department of the Loire forms a portion; the chief engineer is his aid, and three mining engineers take part in the administrative council.

SCHOOL AT ALAIS.

In 1845, a third school was opened at Alais, in the *departement du Gard*, under the direction of an engineer of mines. It was intended for the instruction of intelligent workmen destined for the position of foremen of works. Besides these institutions, laboratories for analysis, modeled to some extent upon that of Paris, have been established at several places.

Mechanical.

Working Velocity of Steam.

The initial velocity of steam when rushing into a vacuum under only fifteen pounds pressure, is set down at 90,000 feet (about seventeen miles) per minute, while the most advantageous or economical rate of speed for the employment of steam in an engine is generally set down at from 300 to 400 feet per minute. The correctness of the theory of the above proportionment of the initial to the working velocity of steam has been questioned. We are not aware that any carefully executed comparative experiments have ever been made to determine at what rate a piston should travel to develop the greatest effective force. Very little, if any attention appears to be given to regulating the velocity of the piston to the pressure; and yet it is quite apparent that there must be an immense increase of initial velocity between steam escaping at 15 and 150 pounds pressure. A writer in a late number of the *American Artisan*, in discussing this subject, says:

"It seems to my mind that the most profitable velocity at which steam can travel is its slowest—that is to say, more power can be obtained from a given volume of steam in a closed cylinder, moving at a very slow velocity, than a moderately high one. Thus, a little extra work thrown upon an engine affects its speed, but a considerably increased resistance is necessary before altogether stopping it. This cannot be accounted for by any considerations affecting the ingress of steam, as we know, however freely supplied, an engine works faster under a light than a heavy load. Hence I argue that, to extract the fullest amount of power from the steam, the piston should move at the lowest possible velocity; or, in other words, should be all but counterbalanced by the resistance of the work, which, if necessary to be driven fast, should be affected by suitable gear arranged between the prime mover and it; nor need the friction consequent upon such method of working at all approximate the loss or reduction in force attendant upon a high velocity of the piston. To demonstrate this, let the weights capable of being lifted by the piston moving at the two velocities of 10 and 200 feet per minute be ascertained, and compare the difference with the possible loss by friction consequent upon employing well-constructed gear to produce the higher velocity from a piston traveling at the lower one, not omitting to give the slower moving engine credit for its diminished friction, etc.

My impression is that, though to produce a given result a proportionately increased area of piston surface would be required, less steam would be used, or, to otherwise express it, more power obtained for a given volume of steam traveling at an unusually slow than moderately quick speed. Be this as it may, however, I am utterly at a loss to understand, while in simple emission or reaction engines there is an acknowledged increased loss of power if the same move at a materially less speed than the initial velocity of the steam, how or why in a closed cylinder arrangement an arbitrary rate of speed of from 300 to 400 feet per minute, altogether or mainly so irrespective of pressure whether high or low, should be regarded as the only correct and most profitable velocity for the employment of steam. There may be a satisfactory solution of this, but as at present advised I am disposed to doubt whether the theory of working steam to the fullest advantage is at present understood, and am inclined rather to believe that a hackneyed, as distinguished from a rational, system of employing it prevails.

FLY WHEELS ON RAILWAY CARRIAGES.—An arrangement for storing up the force of gravity so as to prevent the variations of speed on a track which is undulating, is under trial in Paris. The locomotive has two heavy fly-wheels, capable of being made to work with or in opposition to the driving wheels. During the descent of a down grade, these retard the engine, revolving with rapidity, and storing up the power which they absorb. When it is necessary to ascend an up grade, they are so connected in the reverse way with the driving wheels, that they cause them to revolve and propel the train. The velocity is therefore kept in some degree uniform.

FRENCH TOOLS.—To our eyes French joiner's tools are very primitive articles; the saws are bow saws; the planes are all jack planes; the chisels but few and rough looking. The ironmongery seems equally old fashioned; nails like shoeing nails, hinges like those of an old Paris register box. The material all seemed good, many tool makers profess only to use steel made from Swedish iron. But the tool makers' window would not prove very attractive to our joiners except for curiosity. Of course French joiners declare that their tools are better than ours. One told me that he brought his over here to work in town, and found them better than his companion's tools—I don't think his companions thought so too. But there is no doubt Jean turns out some good work with his few plain looking tools. I hope your readers will understand that what I said last week in reference to French and English joinery, meant only to convey that, on the whole, our work was better than theirs, and not that they did no good work, for I saw some capital work. Yet even this was in a class of work where manipulative and quasi-artistic skill would serve in more stead than simple mechanical skill, as in Gothic church work, particularly traceries, panels, and stopped moulded chamfering and semi-cabinet work in doors, etc. In all those kinds of work I saw some very superior handicraft, both in Paris and the provinces. There was some church work at Rouen that was equal in spirit to the best old work I have ever seen, and superior in execution, and that is saying a great deal. *Builder's Trade Circular.*

TO MAKE WINDOWS IN IMITATION OF STAINED GLASS.—Take cotton or other fabric or paper on which any required pattern or design has been printed, and prepare this fabric or paper by saturation in oil or otherwise, to render the colors more brilliant and transparent; the fabric so prepared is then laid on a sheet of plate glass, and is caused to adhere to the glass by means of varnish or cement; a second sheet of glass is then laid over the fabric or paper, and the whole is secured to the window sash or other article to be glazed in the usual manner.

WOODEN WALL HANGINGS.—A machine has been invented by a Bostonian for preparing a wooden substitute for paper hangings. A log of suitable length and size is squared, and is then by the machine shaved into thin sheets of the usual width. These are put upon the wall with posts in the same manner as those of paper, and while wet. It is said that they are more manageable than paper, being tougher.

EXPENSIVE BUILDINGS.—The Park Bank building in Broadway, adjoining the *Herald* office, now approaching completion, is pronounced by competent judges to be the finest edifice in the country. But a few months ago the *Herald* building was one of the grandest-looking edifices in its neighborhood; to-day, alongside of the Park Bank, with its massive ornamentation of white marble, it is quite dwarfed. The cost of this building is estimated at \$420,000. This sum includes the cost of the land.

The foundations have been in progress for several months of a building that will surpass in grandeur the Park Bank as much as the latter building surpasses its neighbors. This building is to be erected by the New York Life Insurance Company, and will cost one million of dollars. Its exterior will be very imposing, the design being taken from the Temple of the Erechtheus at Athens. The material used will be white marble, of course, brown stone having gone out of fashion for public edifices, as it ought to for private dwellings. The façade of this building will, like the Park Bank, be profusely decorated with pilasters, columns, cornices, etc., in the Ionic order, and will be of massive proportions.—*N. Y. cor. Bulletin.*

LOWER CALIFORNIA MINES.—The Lower California correspondent of the *Bulletin*, under date of January 30th, gives these items: The last month's run at the Triunfo Company's mill yielded \$76 to the ton. The Mexican Co. are working on the slow process, taking out about 1,000 tons yearly, which they ship to Freiberg. The San Juan mill of four stamps has got to work again, turning out about \$4,000 per month. The shipments in silver bars to San Francisco by every steamer average about \$30,000. Mr. Morgan, owner of the San Narcissa mine, has commenced to melt his ores, and the results have been favorable. The rest of the mines are held under prorogue, at a cost of about \$5 per month, the owners, like Micawber, waiting for something to turn up.

Scientific Miscellany.

THE FLOW OF STEAM AND OTHER ELASTIC FLUIDS.—The *Journal of the Franklin Institute* for September, 1867, accredits R. D. Napier with certain propositions upon the above named subject, which were long ago enunciated and proved by Eli W. Blake, of New Haven. The propositions were as follows:

First.—"The greatest rate at which steam will flow from an orifice into a vacuum, is only half of that generally stated and given in the tables published on this subject."

Second.—"Steam or any other gas, at a given pressure, will rush into any pressure less than half its own, exactly as into a vacuum. Thus, steam of anything over two atmospheres will escape into the air or into a vacuum at the same rate."

Mr. Blake, in a communication to the aforesaid journal, dated Sept. 18th, thus speaks of an article contributed by him to the *American Journal of Science and Arts*, twenty years ago, and therein published:

"In that article the propositions accredited to R. D. Napier, were fully stated and proved by the most rigid and conclusive mathematical reasoning; and the true law was given for the flow of steam or other gases under all possible relations of the densities in the discharging and receiving vessel."

Soon after the publication of the article, I called to it the attention of the then editor of the *Journal of the Franklin Institute*, as developing truths of much practical importance, and desired its publication in this journal in order that it might reach a larger number of practical engineers than it was likely to reach through the pages of the *American Journal of Science and Arts*; but I was informed that it was not in accordance with the plan of this journal to reprint articles which had already appeared in other journals.

Three years after the publication of the article, having, in the meantime, learned that several of the most eminent mathematicians in this country, after reading it, had, without further examination, pronounced it unsound, on the ground that it was incredible that the elastic force of the steam in the receiving vessel should not, under all circumstances, have the effect to diminish the flow through the orifice, I devised and carried into effect a plan by which, in a single experiment, the law could be tested throughout its entire range, and in a manner perfectly unexceptionable and conclusive.

An account of this experiment and its results was given in the *American Journal of Science and Arts*, vol. xii., new series, page 186, and I venture to say that never was a physical law, deduced by pure mathematical reasoning, more fully and completely proved by experiment than in this case."

ELECTRICITY IN VACUO—AURORA BOREALIS.—M. Alvergnyat, of Paris, has constructed a new apparatus for demonstrating the fact that electricity will not pass through a perfect vacuum. In a tube containing two platinum wires, the free ends of which are one-eighth of an inch apart, a nearly absolute vacuum is produced by means of a mercurial pneumatic machine. After half an hour's action, the tube is heated to redness, and still further exhausted of air until the electric spark ceases to pass even through the small space between the wires. The experiment goes to prove that the Aurora Borealis can take place only within the limits of our atmosphere, and also that that atmosphere extends, in an attenuated state, to a great height.

NEW CHEMICAL REAGENT.—A new and highly sensitive chemical test for acids and alkalis has been prepared by Prof. Bottger from the leaves of an ornamental plant, *Colons Verschaffeltii*—so called in honor of the Dutch horticulturist, Verschaffelt. The fully developed leaves are digested in alcohol, and slips of Swedish filter-paper soaked in the decoction take a beautiful reddish tint, which becomes green under the influence of an alkali or alkaline earth. As this reagent is not affected by free carbonic acid, it may be used in detecting carbonate of lime in water. If a strip of this paper moistened with water is held over a burner from which gas is issuing, the greenish tinge appears, in consequence of the ammonia from which, perhaps, no gas is entirely free.

CAUSE OF THE TRADE WINDS.—J. Knox Loughton, of the English Royal Navy, communicates a paper to the *London, Edinburgh and Dublin Philosophical Magazine*, in which he takes the ground that the trade winds are not due to the streaming in of the air towards the place of greatest heat, as has been commonly assumed. The temperature of the air over the sea at the equator seldom exceeds 82° Fah.; while in many parts of the world it is, on land, considerably higher. Over a large part of Africa, for instance, north of the tropic, it is seldom less than 90°, and often over 100°; sometimes as high as 112°. Much higher temperatures have been noted at times in other regions. The Atlantic air from the latitude of 30° north, at, say, in summer 75°, rushes southward to where the thermometer stands at 82°, instead of eastward where it is 100°; as would be the case if the commonly received theory was the true one. The paper goes on to show ground for believing that "sudden condensation of aqueous vapor is the principal cause of the trade winds, of their inflection towards the west coast of Africa, and of the Indian monsoon, in opposition to the theory which derives these winds from the mere expansion of the intertropical air by heat."

"VITAL FORCE."—Wm. Odling, F. R. S. of London, has recently published a series of lectures on American Chemistry, intended to show that there is no such thing as "Vital Force." We quote: "By burning off successive atoms of carbon and hydrogen, the chemist can transform the most complex organic substance into more and more simple ones, until at last he arrives at carbonic acid and water; and then, by reversing the process, and removing atom by atom of oxygen from carbonic acid and water, he can build up, stone upon stone, the edifice which he has taken down. This same conservation of force pervades the inorganic and organic. The sun's force which removes from carbonic acid and water their oxygen and forms plant-tissue, is given out by the oxidation of animal tissue, a unit of heat or mechanical or chemical force being evolved for each unit of solar force absorbed. The supposition of a vital force is not more necessary to account for the formation of organic compounds in the animal body, than it is for their formation outside the body."

THE ACTION OF OZONE ON SENSITIVE PHOTOGRAPHIC PLATES.—At the meeting of the Dublin Chemical and Philosophical Club on Dec. 12th, Dr. Emerson Reynolds stated that he had found that when the image before it is developed is submitted to the action of ozone, it is completely obliterated, and that a second image might be taken upon the same plate. He remarked that this was against the mechanical theory of photographic images, and that it was due to chemical change in the sensitive film. He thought that the difference in the length of time for which dry plate remains sensitive, was probably due to the difference in the quantity of ozone present in the air at different times. * * At the same meeting, Dr. Frazer stated that he had kept specimens for efflorescing minerals for years by smearing them with glycerine.—*Chemical News.*

KEROSENE LAMPS.—It is said that the light of coal oil lamps may be greatly improved by adding to the oil one-fourth its weight of common salt. It makes the light much more brilliant and clear, keeps the wick clean, and prevents smoking.

ALLOTROPISM.—If phosphorus be sealed up in a piece of glass tube, and warmed for a few days, it becomes brown in color, and will no longer shine in the dark. It is in fact changed in character completely. It will no longer oxidize in the air. If it then be heated to 500° F., it becomes phosphorus again.

A CANDLE TO BURN ALL NIGHT.—When, as in the case of sickness, a dull light is wished, or when matches are mislaid, put finely powdered salt on the candle, till it reaches the black part of the wick. In this way a mild and steady light may be kept through the night by a small piece of candle.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand, New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

73,021.—IMPROVED APPARATUS FOR COLLECTING PRECIOUS METALS.—James F. McDougal, San Francisco, Cal.:

I claim, 1. A sluice containing obstructing-standards, so placed as to convert the current into eddies, substantially as described.

2. The iron standards, B, C, together with the removable copper tubes, D, or an equivalent device, constructed and arranged substantially as above specified.

3. Plugs, a, a, for raising and lowering the tubes, substantially as described.

4. Copper plates, b, b, when employed and attached to the sides of the sluices, as and for the purpose herein described.

The object of this invention is to provide a new and improved method for constructing sluices, so as to bring the gold or silver into contact with amalgamated copper surfaces, to effect a greater saving of the precious metals. This is accomplished by constructing a sluice-box in the ordinary manner, and placing within it perpendicular tubes or bars of copper in rows, in such a manner as to intercept the stream and cause it to form a succession of eddies, thereby checking the motion of any precious metal, and bringing it into contact with the surface of the copper; the tubes standing either perpendicularly or at an inclination, as may be found most convenient or efficient.

73,042.—IMPROVED DRIVING BRIDLE.—Archibald Rice and Lewis Leach, Fresno, Cal.:

We claim the combination and arrangement of the strap, a, a, with loops or pulleys, c, c, and d, d, with the reins, A, hitched to the post hook, and running through the loops or pulleys, c, c, and to the hames or saddle, substantially as described.

This invention provides a bridle, with a bit so constructed that the cheek-rein is done away with, or combined with the driving-rein, and only the two driving lines employed. To accomplish this object, the head-stall is made in the usual way, with the exception of two straps, which cross the forehead of the animal angularly above the eyes, and extend down to the rings of the bits, to which they are attached, the other ends being formed with loops. Through these loops the reins pass, the center or "hite" of which is placed in the cheek-hook of the saddle. With these reins the animal is easily managed, while he works easier than when the curb-bit is used, and is less liable to hurt in the mouth. It is self-regulating, as by simply slackening the hold, the horse will regulate the tension himself, and can readily reach his head down to eat or drink, thus obviating the necessity of alighting to uncheck, and avoiding the danger of his starting to run while doing so.

73,306.—IMPROVED ORE CONCENTRATOR.—Henry Donnelly, Virginia City, Nev.:

I claim, 1. The concave reversible shaking-tables, c, c, attached to and operating upon the opposite sides of the shaft B, together with the trough, A, substantially as described.

2. The key, c, and the spring, d, together with the arms, a, a', h, h', loosely attached to the shaft, B, for the purpose of reversing and locking the tables, substantially as specified.

The object of this invention is to provide an improved concentrator for saving gold and sulphurets. This end is accomplished by constructing two concave reversible tables, placed back to back, on the same axis, and operated so as to have a shaking motion, which serve to concentrate the gold and sulphurets upon the upper concave blanket, until it is full, when the tables are, by a simple device, reversed—the upper one going below with its load of sulphurets, which are then washed off in a tank of water; while the other table, being at the top, is filling, a sufficient amount of water being supplied to separate and wash off the sand, while the surface of the blanket retains the gold and sulphurets until it is again reversed. The sulphurets are retained by the fibers of the blanket until it is well covered,

when, without stopping the machine, the apparatus is reversed, to receive the discharge from the feeding trough. By this alteration the work is made continuous, and no stoppage is required.

73,337.—IMPROVED FINISH FOR PAINTED SURFACES.—Henry T. Payne and William Ayres, San Francisco, Cal.:

What we claim is a finish for paint, consisting of crude galena, prepared and applied substantially as described.

This invention relates to an improved finish for paint, either on the outside or inside of buildings, or for signs, and consists in substituting pulverized galena for smalt or sand which is now generally used for such finish. The galena is pulverized to the desired fineness, and applied in the same manner as smalt or sand, by being thrown against the painted surface by hand. Any surface so treated will present a brilliant finish, which may be made to imitate marble or other stone according to the degree of fineness to which it may be pulverized, etc.

RECENT INVENTIONS.

A NOVEL INVENTION—THE WAVES TO BE USED FOR PROPULSION.—Mr. W. D. Robertson, the inventor of the railroad track-laying machine, is now engaged upon another novel enterprise, which consists of an invention designed to make use of the waves for propelling vessels at sea. To accomplish this, he constructs three boats, and attaches them in any convenient and practicable manner, so that they shall float in a line. The center of the three boats should be of a tonnage about equal to both the others, and is rigged with wheels, like a steamboat, each wheel having a walking-beam, one end of which is connected with the crank of the wheel shaft. The opposite extremity of each walking-beam is connected with a compensating cam, which describes in its movement the arc of a quadrant. These cams are also connected, by a connecting-rod, with their respective boats, the one forward or the one aft the center boat. By a peculiar device, the alternate elevations and depressions of either the forward or after boat is made to move the cam, which, by its connection with its respective walking-beam, is made to operate the same so as to perform the service of the piston of an engine in turning the wheel. Every motion of the forward and after boats, however little or much, is all converted into a direct and continuous action upon the wheels. A rise or fall of either boat to the extent of one foot, is sufficient, we believe, to give the wheel with which it is connected one revolution. The machinery is so devised that the power may be regulated at will, or disconnected altogether. The boats themselves may be disconnected at a moment's notice; and as each is provided with masts and sails, they can move independently under sail. The united length of the boats being constructed for the trial is sixty-eight feet. They are all completed, and will be launched and the first trial trip made the coming week. Some six or seven thousand dollars have been expended so far in this experiment. Mr. V. Frazer is associated with Mr. Robertson in the enterprise. We hope he be present at the trial trip, and shall report the same for the information of our readers, with a more full description of the propelling machinery. We trust that Mr. Robertson's efforts to harness the waves and make them subservient to his will, may be as successful as could be wished.

ROCK DRILL HOLDER.—Mr. John Pattison, of Nevada, has invented what appears to be a very convenient and useful device, intended for holding and turning a rock drill, by the aid of which a man can strike with both hands in any direction, while he holds the drill in position and turns it, to an exact gauge, with his foot—the drill being moved at every blow. The device is exceedingly simple, and is secured in position for work by being attached to any convenient piece of timber, with a simple set screw, as a sewing-needle is attached to a lady's work-table. One important advantage connected with the use of this device is the small space in which it can be operated. It is often the case that a large amount of time is lost in preparing a place for the drill-holder, which necessity is entirely obviated by this device; as if no convenient piece of timber is already presented to which to secure the drill, it is but the work of a mo-

ment to adjust one, and by it the labor of one man is saved. The entire mechanism weighs less than twenty pounds. The drill is removed from the hole for clearing the same or changing the drill, as readily as when held by hand. The inventor has submitted it to practical tests in Nevada. Application for a patent for the invention has been made through this office.

QUICKSILVER FEEDER FOR QUARTZ MILLS. The same gentleman has invented a machine for feeding quicksilver to quartz batteries, which is operated by any simple device which may be readily connected with the cam-shaft. Great difficulty is experienced in feeding quicksilver to the battery by hand, with the proper degree of regularity, to obtain the desired benefit therefrom. The feeder is apt to be over neglectful, or he feeds too much at a time; loss is the result in either case. By this device any given amount of quicksilver can be dropped into the battery at regular intervals, according to the speed with which the battery is being run. The feeding can be varied to suit the character of the rock being worked, to the smallest desirable amount. The device is cheap, occupies but a small space, and can be set, if desirable, entirely above the stamps so as to be quite out of the way. All that the amalgamator has to do, is to fill his reservoir, and the amount of feed to the battery cannot vary or fail until the reservoir is empty. The instant the mill stops the supply of quicksilver is cut off, and put on again the instant the mill is started up. Application for a patent for this machine also has been made through this office.

Any person desiring further information with regard to these machines, or who may wish to purchase the same, should address John Pattison, Nevada, Cal.

COMBINATION STEEL RAIL.—Mr. E. P. McCarthy, of this city, has invented and has on exhibition at the Merchant's Exchange, California street, a new rail, which he terms the "Combination Steel Rail." It is in two parts; the continuous grooved chair and the rail itself. The first is of wrought iron plates, the second of steel; and the two are so laid as to reciprocally break joints. Between the chair and the rail is a thick layer of felt. The rail is forced into its place by a considerable pressure, and when down is firmly bolted to the chair. We shall describe this invention more fully at another time. Mr. McCarthy has applied for a patent through this office.

CITY TELEGRAPHING.—A plan has been adopted in Paris for the transmission of telegrams to all parts of the city every ten minutes. Boxes are placed at different points for the reception of the dispatches, and adhesive telegraph stamps, attached by the writers, may prepay them. The contents of the boxes are sent to the office of the district every ten minutes, by atmospheric tubes.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

SAN FRANCISCO HAULING CO.—Feb. 11th. Capital stock, \$100,000; 1,000 shares, \$100 each. Trustees: John Rosenfeld, Oliver Hinckley and John Maskell.

EPELEY GOLD AND SILVER MINING CO.—Feb. 12th. Capital stock, \$100,000.

THE WEATHER.—Mr. Tennent's weather gauge has shown that the night of December 27th–28th was the coldest of the present cold winter, and the coldest ever recorded by Mr. Tennent in this city. The thermometer registered twenty degrees.

DEATH OF AN INVENTOR.—Samuel Nicholson, the inventor of the pavement hearing the same name, died on the 6th ult., at the United States Hotel, in Boston, after a brief illness. He was a native of Plymouth, Mass.

YOSEMITE, AGAIN.—The Assembly has passed the Yosemite bill over the veto of Gov. Haight. This looks bad. Congress will, however, undoubtedly refuse to ratify their action.

"THE OLDEST DOCTOR IN THE WORLD." Prof. F. Verdugo, of Salamanca, Spain, died recently, aged 105 years. He had practiced medicine for eighty years.

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This is a new publication, and in style and treatment of this important subject, is original, simple, plain and comprehensive. The author, PROF. LAYRES (a meritorious Teacher of good standing in California, and a sound thinker and reasoner,) in his preface says: "The method pursued by the Author in developing the subject of Composition, is both the synthetical and analytical. The former is necessary to teach the theory, the latter the practice of the art; and as these are both indispensable to the scholar, so are also the two methods, as the sequel will show."

The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools.

To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—John Siet.

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—J. C. Pelton.

After a careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in my profession who would not be benefited by its careful study.—Wm. H. Hill.

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—F. W. Hatch.

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the application of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text-books.—James Deann.

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—Martin Kellogg.

I recommend it to all those who wish to obtain a book that will give them definite ideas on this subject, and teach them to express their thoughts and feelings in a clear, simple, and forcible manner.—Caroline L. Atwood.

I regard the book about to be published as far superior to any work extant upon that subject.—Wm. S. Hunt, A. M.

I believe the work will be a valuable and much needed addition to our school text-books.—Herman Perry.

You have brought the results of a profound analysis, and made them available, in a practical form.—J. H. Brayton.

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of valuable special pleadings and as advocates at the forum.—John Curry.

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. * * * It will soon become a necessity in every lawyer's library.—Charles A. Tuttle.

Its clearness and comprehensiveness make it easy.—G. W. Bouie.

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Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Feb. 1st: The shaft on the Morning Star lode is now down 70 ft. The pump works splendidly, keeping the water out without difficulty, and the work goes on in good shape.

Mr. T. Chalmers, the London agent who is waiting here returns from his principals, before starting up work on some extensive mining enterprises in this district, attracted by the surface indications of the recent locations made for the Monitor Consolidated Co., and the fact that actual surveys conclusively prove this to be the Boulder Hill lode, has located 1,000 ft. of the lode south from the Monitor Co's ground.

Amador County.

Dispatch, Feb. 8th: The Sulphuret mill at Sutter has been purchased by the former owner, S. S. Manor, and is now in operation, running on sulphurets obtained in that district and other places.

The sulphuret works at the Coney & Bigelow mine are now in full blast, and work to perfection. They are under the superintendence of Mr. Agrell.

Calaveras County.

Chronicle, Feb. 8th: On Saturday last we visited the Golden Gate claim and the mine owned by Paul & Co. Work is being constantly pushed forward on both claims with the most satisfactory results. In the Golden Gate claim, an incline tunnel, 400 ft. in length, has been run, and a lead of paying gravel 100 ft. in width, developed. The company have about 1,500 car loads of gravel spread in the drying yard, which they will wash as soon as it has slacked sufficiently. Should the dirt pay as well as it prospects, a mill will be erected to crush the gravel as it is taken out. The company have developed what promises to be a remunerative mine.

Paul & Co. are working a large number of hands, and taking out gravel which fairly glistens with the precious particles. The claim is worked through a tunnel 1,100 ft. in length, 900 of which extends through bed rock hard as flint. Upon breaking through into gravel, the tunnel was found to be 13 ft. above the bed of the channel, necessitating the running of an incline a distance of 75 ft.

The Cat Camp correspondent of the San Andreas Register writes as follows: There are about 80 companies at work, averaging three white men to each, and in several instances two or three Chinamen. Some few claims have been bought by Chinamen. Out of the whole 80 I think I should be quite safe in saying not more than five but are making over \$2 per day clear of all expenses, while some were making as high as \$10 per day clear to the hand. There is no great strike expected to be met with there, fair wages for a fair day's work will be the average. No gold has been found larger in one piece than 25 cents. The pay dirt is not deep; it is shallow in fact, but there are some very good hill diggings, banks say from 15 to 20 ft. Messrs. Holman & Co. are making about \$4.50 per day to the hand out of a claim they bought of two San Andreas men for \$30.

Inyo County.

Charles F. Duval writes to the Virginia Enterprise from the Cerro Gordo mines as follows: The miners in Coso are doing passably well, averaging \$5 per day to the hand; but those of Cerro Gordo are able to do much better, even with a common "baso." Had we some clay here that would stand fire, all interested in mines could make money as fast as any reasonable man could desire. There is great excitement here about some newly discovered mines, situated about fifty miles east of Coso. It is reported that they pay \$100 per day to the hand, but that the Indians have driven the miners away. Companies are forming to go and drive out the Indians. The Cerro Gordo Co. have a large amount of ore at their furnaces, but cannot work it on account of the weather, having no lumber with which to shelter their works.

Kern County.

Grass Valley National, Feb. 6th: The El Dorado and Piute mining districts, situated in the southeast corner of Kern county, have already attracted the attention of some of our Grass Valley operators in quartz mining by the richness of the gold-bearing veins found within their limits. Shafts have been already sunk to the depth of 200 ft., and the lead where now being worked is 9 ft. wide. Some of the rock from these claims yields as high as \$200 to the ton.

Mariposa County.

Gazette, Feb. 8th: From Hornitos, we have the following items: Geo. Chittenden has leased the Grimshaw vein and his quartz mill on Bear creek to J. G. Ransom & Co., late of Alpine county, for two years from March 1st.

Page, Dyer & Weber are erecting their building on the Washington vein, and will have it in readiness to receive their new mill as soon as it arrives. They have made arrangements to erect a furnace early this spring, and are going to use the chlorination process in separating the gold from the sulphurets, which are quite rich in this vein.

Wm. B. Floyd has sold to parties in San Francisco a portion of his mine in Hunter's Valley, known as the Floyd mine.

Miners about Sherlocks have been ground sluicing during the late heavy rains.

Nevada County.

Transcript, Feb. 5th: We learn that a lot of fine looking rock from the California mine is to be crushed at Palmer's mill.

Feb. 6th: On Tuesday last a rich body of ore was struck in the Pittsburg mine. About last July a break occurred in the mine, and since that time they have been running for the ledge. On Tuesday last they opened upon a body of ore, where the ledge is well defined, which has much the appearance of the quartz which was obtained from Rocky Bar. The rock appears to be better than any ever taken from the mine, and it is estimated that it will yield fully \$200 to the ton. The Pittsburg mine is what was formerly known as the Wigham mine.

Feb. 7th: The hydraulic claims on North San Juan Hill are making good returns to their owners. After the last run, the Star claims, owned by the Yuba Ditch company, cleaned up between \$8,000 and \$10,000.

The American hydraulic claims at Sebastopol, Bridgeport township, still maintain their excellent reputation. A short time since one-sixteenth was sold for \$8,000, and we understand that the last clean-up was above the average, which is about \$10,000 to the run.

Feb. 8th: Mr. Brock, who is engaged in working over old tailings under the bridge below the New York Co's mill, is making first-rate wages. He is working in the vicinity of the claims worked by Sneath & Clay some years ago.

The new works have been completed at the Star Spangled Banner mine, and fine progress is being made in the mine. They now use one engine for pumping and another for hoisting.

The great rush of water in Greenhorn creek, opposite Quaker Hill, of last month, wore down the tailings; the cessation of storms and the intense cold then shut off the water. Several companies of miners have gone to work on the tailings of the creek, and are making from \$5 to \$8 per day to the hand.

Grass Valley National, Feb. 5th: Parr, Perry & Co., near the Sugar Pine mill, on the Greenhorn road, have commenced hydraulic on their gravel claim with good success. Their ground is from 8 to 10 ft. deep, and pays from top to bottom. They have two immense flumes, each 800 ft. long, which cost about \$6,000.

Feb. 8th: Yesterday a German named Fritz Jensen picked up a piece of quartz rock back of Nigger Hill which contained gold valued at from \$10 to \$20.

Gazette, Feb. 10th: For the last three weeks the Gold Hill mill has been crushing rock from the Dromedary at the rate of 25 tons a day, which will yield some \$25 or \$30 a ton. At the present time 55 men are employed in the mine, and they are raising about 260 tons a month. The yield will be much larger when the mine is more fully opened.

EXCELSIOR.—Virginia Enterprise, Feb. 8th: It is said that the snow is now from 15 to 20 ft. deep in Meadow Lake. The only communication between the town and the outside world is by means of snow shoes. There are only some 30 or 40 persons now stopping in the town. None of the mining companies in the district are doing anything at present, except the Enterprise and Mohawk & Montreal companies. Both of these companies are working their mines vigorously.

Placer County.

Stars and Stripes, Feb. 6th: The shaft of the Fred. Mallet claim is down 50 feet, and at that depth good prospects were obtained before the winter storms set in. The shaft is now full of water. Specimens of the rock which we saw in the dump were full of sulphurets. Work on the New Mexico will be resumed soon, and the owners will make an effort to procure a small mill in the spring. This ledge furnishes quartz which yields \$16 per ton in free gold.

The Black Lead on Bald Hill has no equal in the State for richness. The ledge

is partly decomposed, and yields at the depth of 75 ft. from \$100 to \$200 per day to the hand in free, coarse gold. We saw a large lot of the gold at the Express office on Saturday last. The gold is worth nearly \$18 per ounce in the market.

Herald, Feb. 8th: There are many locations on the Black and Green Emigrant ledges, but the Green Emigrant Co. and the McGonigle, Perry & Co., on the Black Ledge, are two different and distinct mining companies. Both are very rich and being worked vigorously by their owners.

Plumas County.

Quincy National, Jan. 25th: Messrs. Jolly & Co. of Nelson Point, are moving the earth rapidly in their claims this winter, with plenty of water, which is quite a rarity for them, and they enjoy it much, as they anticipate a rich harvest of "big lumps" next summer.

Shasta County.

Courier, Feb. 8th: The Mammoth steam quartz mill, the most complete and costly mill in this county, has proved an unprofitable piece of property for its owners. The mill was first located near the main Mammoth lode, at Old Diggings, but the rock failed to pay, and the establishment was removed to the Harrison ledge, near Quartz Hill. Several runs were made on rock taken from this ledge, but the company came out in debt at the end of each run, and the mill was stopped. The company have authorized the Trustees to sell the mill for a sum sufficient to pay the company indebtedness.

Alexander Leider recently picked up a gold nugget between Horsetown and Muletown, which weighed one ounce.

Sierra County.

Downsville Messenger, Feb. 8th: It is reported that the Doole Co., near Alleghany, are taking out about 25 pounds of gold weekly—over \$5,000.

We hear that the Eagle, Slope and Gate claims are again paying well.

Siskiyou County.

Yreka Union, Feb. 1st: The cold weather which has prevailed now for over a month has suspended all mining operations, and as a consequence ready money is becoming particularly scarce. Nor is there at present any prospect that miners will be able to resume operations soon. The ground is frozen so hard that it is impracticable to wash; and owing to the very cold nights, water does not become abundant enough in the creeks for ground sluicing.

ARIZONA.

Prescott Miner, Jan. 11th: F. H. Wunderlich, recently from Big Bug district, informs us that quite a number of men are engaged in running a tunnel upon the Eugenie lode. The several strata of which the ledge is composed are as follows: Next the foot wall there are between 18 in. and two ft. of solid quartz, mixed with small, neatly formed sulphurets of copper; next to this stratum, there is the same thickness of decomposed copper-stained rock; then there are fully two feet of solid, bluish rock, which is also well mixed with sulphurets, and which breaks out in large, square pieces. We have seen a piece of this sulphuret rock, and it looked to us as though it would pay well, if properly treated.

A drift, 20 ft. in length, has been run into the Galena ledge, at a depth of 70 ft., which opened up a body of beautiful sulphuret ore, $\frac{3}{4}$ ft. thick. There is a bluish-black rock in this ledge that has assayed \$500 per ton.

Placer mining, on account of an insufficient supply of water, is at a stand-still.

Poland & Pearson, in Walker's district, recently worked five tons from the Spur lode. The clean up established the fact that the Spur is a good lode.

McCrackin is hauling rock from the Pay Streak, a new ledge.

Watson, Fredericks and Marsh, are taking rock out of the Shamrock lode.

A French is burrowing in the Tie-Tie. The Thunderbolt mill is running upon Shamrock and Tie-Tie ores.

Some placer mining is being done on the bars of the creek, but there is scarcely enough water for that purpose, or for running the water arastras.

Young & Roddick, in Hassayampa district, are down 46 ft. upon the Chanco lode. The rock looks first rate and shows native silver. Joe Young, one of the owners, got, recently, out of nine pounds of rock, nine ozs. of amalgam.

The Chase lode continues to yield plenty of rich rock. Work is progressing steadily.

Mr. Reed started the Sterling mill on Wednesday evening, upon a small lot of Sterling tailings.

A party of Gormans, who have been engaged in placer mining on the Hassayampa, recently struck, while working in the bed of that stream, a large ledge of finely grained

plumosa. After manipulating and reducing the ore, the amalgam is worth \$5 per oz.

Frank Alters has lately found a big, rich quartz ledge, and is now at work upon it.

We were recently shown by Mr. Sholton, of Walker's district, a lot of beautiful specimens of quartz and gold, which were found by him recently in that district. The quartz which holds the gold is bluish-white. One of the pieces was more than half gold; the others were also very rich. The ledge from which the pieces were slid or washed has not yet been found, but parties are now prospecting for it.

COLORADO.

Central City Register, Jan. 21st: The cold spell seems to have passed for the present, and the weather has settled into the bright and beautiful, solidly and steadily cool. The Briggs, and Smith & Parmelee mines experience no trouble as yet from the stoppage of the Black Hawk, and miners manage to keep all the custom mills heretofore employed, running, together with a portion, if not all of the Black Hawk Co's mill. The rock from all the mines working at present is paying as well or better than before for several years.

Mr. Ed. C. Parmelee showed us yesterday a sample of ore weighing several pounds, from the Munsell lode, near the Equator, above Georgetown; also 12½ ozs. of pure silver, taken from 18 lbs. of the ore by Stowell & Litchfield, of Georgetown, assaying at the rate of \$1,800 per ton.

Mr. Conlee's last week's clean up was 150 ounces.

Mr. Conleo has been running 40 stamps of the Black Hawk Co's mill since they stopped work, and the company have been running the other 20 on their ore from the Bobtail mine.

The water is now 250 ft. deep in the Black Hawk Gregory mine, and rising very slowly. The Smith & Parmelee have made arrangements which they think will take care of it if it shall run over on them. The latter company are getting out fine ore in large blocks from their pump-shaft.

A gentleman gives us the following items in reference to the quality of the ore from a certain lode on Quartz Hill. He took four samples to New York last winter and submitted them to Mr. Dunning, of the U. S. Assay Office, who assayed them, No. 1 yielding at the rate of \$88, No. 2, \$857, No. 3, \$4,955, No. 4, \$11,494 per ton, \$2,000 of the last result being silver. Last week, \$20 in gold was taken from 20 lbs. of the best of this ore, sulphuret; and again, \$103 was taken from 400 lbs. of it, by the Kenyon process. The vein of ore whence it was taken was 18 in. wide, the very richest stratum about three in.

Denver News, Jan. 22d: Mr. J. J. Hoover exhibited to us this morning some specimens from the Five-Twenty lode in California Gulch, Lake county. The specimens taken from this lode, are among the richest we have ever seen, and prove its immense wealth. The rock is so soft that no blasting is necessary, but can be taken out with picks and shovels. They have about 50 cords of quartz on hand, which they have just taken out.

DACOTAH.

The Chicago Republican gives the following extracts from a letter dated "New Gold Mines, Dacotah Territory, Jan. 1st": Out of the Creso lode, the first discovered, men have made as high as \$130 per day with a hand mortar. Four tons of rock hauled to Springfield, gave a result of \$28,000; but at present the company are paying \$200 per ton to have the quartz hauled 500 miles to be crushed, with a result of from \$2,000 to \$4,000 per ton. In three or four cases rock which has been pounded in a hand mortar has yielded from \$10 to \$12 to the pound of ore.

The lodes are all well defined, found mostly in the slate or on the break between the slate and granite. The Atlantic can be traced and crops out for between four and five miles, is from five to 15 ft. wide, and assays \$197 per ton, with wall rocks of slate, inclines to the north, 32°.

The Mammoth is from four to 12 ft. wide, rises above the surface for some four miles, at places only a few inches and again to the height of three or four feet; prospects well, and has the appearance of being just as good a lode as the Atlantic.

Miner's Delight lode is 15 in. wide on the top, and at the depth of 12 ft. it is three ft. wide, shows for some 400 ft. in length. Men at work on rock from this mine, with a hand mortar, make from \$4 to \$15 per day. An assay of average rock yielded \$800 per ton.

The Almira is visible for a mile, about eight ft. wide and prospects well.

The Lone Star State, $\frac{3}{4}$ ft. wide, shows fine gold in abundance.

The Pacific is nearly five miles in length, from 10 to 20 ft. in width, prospects the entire length and width. The ore will yield from \$150 to \$200 per ton.

The Great Republic is from four to 12 ft. wide, crops out for 5,000 ft. and prospects very rich.

Greek Slave is nine ft. in width, shows for 3,000 ft. in length, and prospects splendidly.

The Amphictyon is five ft. wide, shows 7,000 ft. and cannot probably be equalled in richness by any gold mine ever discovered. Some 150 lodes have been located in a circle of six by fifteen miles, while the great mineral belt in which these mines are found extends from 30 to 60 miles in width, from east to west, and .30 miles from north to south, but only a small portion has been prospected, and that only run over. There have been three gulches found which prospect from three to thirty cts. to the pan, with from two to five ft. of pay, plenty of water, and no stripping. In the Cresco Gulch, during the fall, as high as \$30 per day to the man was made. The prospects are that very rich placer mines will be found during the spring and early in the summer; there are probably not over 25 holes in all this country sunk to the bedrock. Reliable reports which have just reached us bring tidings that a very rich gulch has just been discovered 20 miles east of the South Pass. The gulch is reported to be five miles in length, plenty of water, pay nine ft., and that all the way down good for from an ounce to \$30 per day to the hand; also rich diggings are reported as just discovered at Devil's Gate, on the Sweetwater, where gold has been found for years, but never in paying quantities.

Virginia Enterprise, Feb. 4th: Parties are leaving almost daily for the Sweetwater mines.

The Grass Valley Union hears of several parties being made up to go to the Sweetwater mines in the spring. A general stampede to that region is expected.

IDAHO.

Owyhee Avalanche, Feb. 1st: Work is going on lively at the Oro Fino. In the south drift the ledge is now five ft. wide and getting richer. Owing to the want of shoes and dies the Morning Star mill is not running at present, but the Cosmos mill is constantly running on Oro Fino ore.

Work is being vigorously pushed forward night and day on the Ida Elmore, and ore of marvelous richness is being taken out. It is estimated that each load of quartz hauled from this mine, yields over \$1,000. Gold can be plainly seen in almost any portion of the rock—beside it contains large quantities of silver.

We noticed this week in the ore house at the Golden Chariot mine a pile of ore all sparkling with gold and streaked with silver. Work goes on night and day, and the ledge appears to become richer the deeper it is worked.

The Rapidan is being worked, as is also the Omega, two ledges discovered late in the fall. The boys are getting ore rich in gold and silver from both of these mines.

The Calaveras mine prospects well, and preparations are being made to work it on an extensive scale.

A number of tons of ore have been worked from the Allison mine. We are not at liberty to state the yield.

Yesterday, Wells, Fargo & Co. shipped below \$40,000 in bullion. During the last month \$150,000 have been shipped from Owyhee.

NEVADA.

Black Rock.

Amador Ledger, Feb. 8th: The Black Rock mines, of which so much has been said, are now considered worthless. Every expedient has been exhausted in the endeavor to make them pungle, and many shrewd, honest quartz men have lost their money. Among others our most worthy and old time friend Uncle John Atchison. Comes back to Amador, Uncle John, and you shall have a mine that won't take a mine to work it—no eyesnuck in it.

Reese River.

Reese River Reveille, Jan. 29th: Several mines of Lander Hill are just now producing ore of a higher quality than usual. This is especially true of the Magnolia, Florida, North Star, and Troy. We were shown samples last night of the ore obtained from the lower workings of the Magnolia, which was a sulphuret of the simplest combination and rich in silver.

Feb. 1st: The lack of salt has caused most of the mills to close operations until the weather permits of its being procured. This cause closed the Metacom mill on the first of the month, and compelled the five 20-stamp mill of the Twin River Co. to lie idle for three-fourths of the month. The mill of the Centenary Co. in the Newark district is now closed, or will be shortly, for the same reason.

The Buckeye mine, in Summit canyon, produced the most beautiful specimens of

native silver, in flakes, threads, and moss-like bunches, that have yet been exhibited in this region. Besides native silver, the pure sulphuret of silver is obtained from the mine. We saw last evening very choice specimens of this black silver; they were procured in the upper tunnel of the mine, and were almost the pure sulphuret of silver. Captain Kidd, the Superintendent of the company, told us that he worked a specimen of this black silver of the weight of 3½ ounces, and obtained from it 2½ ounces of silver. The Buckeye mine is apparently a deposit, and the ore occurs regularly in irregular bunches.

Feb. 4th: We saw to-day a bar of bullion valued at \$233.81, and 937 fine, which was produced from 3,000 pounds of ore from the Silver Circle district. The lot of ore was worked by J. R. Murphy at the California mill.

Yesterday afternoon 14,000 ounces of crude bullion were brought into the city from the mill of the Centenary Co., Newark district. The bullion was produced by 14 days' run of the mill.

Feb. 6th: From a party recently returned from Palmetto district, we learn that the snow was 18 inches deep. The Kentucky ledge is from 6 to 9 ft. thick, and carries a compact mass of ore of very simple combination. Tests place the average yield of the ore at from \$75 to \$100 per ton.

Feb. 7th: The mill of the Centenary Co. was destroyed by fire on the 5th inst. The machinery received little or no damage. The engine, battery and pans are standing apparently uninjured. The entire loss is estimated at from \$15,000 to \$20,000.

In the vertical shaft of the Plymouth Co. in Lander Hill, a ledge was struck yesterday at the depth of 247 ft. It is believed to be one of the company's ledges, and exhibits six inches thick of fine looking ore. Silver Bend Reporter, Jan. 25th: The New York and South Twin River Co. have purchased several promising mines in Reveille district, and intend erecting a 10-stamp mill in the spring.

The Combination Co.'s 40-stamp mill will commence work during the coming week.

Messrs. Leon & Mullen have purchased a mill-site at the lower end of town and contemplate the erection of a small mill, early in the coming spring, for the purpose of working the ore of their Eldorado South mine, which continues to develop to their entire satisfaction.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia Enterprise, Feb. 4th: There is at present but about 150 ft. of water in the Imperial-Empire shaft. As soon as this water is hauled out the guides for the cage will be put in and the work of drifting will be commenced at the depth of 900 ft.

The amount of bullion shipped from the office of Wells, Fargo & Co. at Silver City, for the month of January, was \$12,000.

Feb. 5th: There has been a marked improvement in the character of ore from the Lady Bryan mine within the last two weeks. At a point about the center of the lode the ore is of more than ordinary richness. Assays from it give as high as \$260 and \$300 per ton. At or near this point they have sunk a winze down some 20 ft., in order to test whether it would hold good in going down; besides this experiment, at a distance in the tunnel run in early days from the cañon, some 50 ft., they commenced a drift north and south on the lode and found the ore to be of equally as good character as that found in the face of the croppings. This ore is reduced at the DeLand mill. Thall & Co. have returned the company a bar, containing \$2,200 from the settlers alone, and it is almost positive that the pans will clean up more than the settlers. According to the closest calculation, the ore will yield over \$33 per ton.

Feb. 6th: Work will be resumed upon the Sacramento and several other mines, situated on Cedar Hill, as soon as the snow disappears from the roads leading up to the various claims.

A deposit of good ore, of considerable extent, has lately been found in the Milton mine, between this city and Gold Hill.

Feb. 8th: An assessment of \$10 per share was levied on the Sierra Nevada claim February 5th.

Several mills on Gold Cañon that were lying idle, during the stormy weather prevailing for the past two or three months, for want of ore have again resumed operations.

Wells, Fargo & Co. shipped from their office in this city during the past week, 2,862 lbs. of assayed bullion, valued at \$53,410.76.

(Continued on Page 106.)

Salt Spring Valley and the Adjacent Region in Calaveras County.

(Read before the California Academy of Natural Sciences, December 16, 1887, by W. A. GOODYEAR, Ph. B., Civil and Mining Engineer.)

(Continued from Page 82.)

It has been already remarked, that this zone or belt of surface decomposition, in which the "Quail Hill" and other similar mines occur, may be traced with considerable constancy for at least fifteen or eighteen miles, and that it is not improbable that it is much longer than this. We cannot, however, infer from our present knowledge that the decomposed or "calico" rock is continuous throughout the belt, or even for any considerable portion of its length. On the contrary, its distribution within the belt appears capricious and local, i. e., it seems to occur in more or less detached and isolated masses, which vary largely in form and size, and are irregular and indefinite in outline; so that little more can be predicated of their occurrence in general, than that they are mostly confined within a comparatively narrow belt, and that their longest dimension exhibits a general tendency to approximate parallelism with the axis of the belt, and the stratification of the inclosing country. Sometimes,—as, for instance, along the northeastern side of the Quail Hill formation,—this tendency is so strongly developed, and the passage from the decomposed to the undecomposed rock is so rapid, as to form for some little distance a tolerably straight and well defined "wall" or line of demarcation, parallel, or nearly so, with the stratification of the country. But the change or passage from the decomposed or "calico" rock to the surrounding undecomposed country, though sometimes rapid is always gradual, so far as I have seen; and though we cannot as yet speak much from underground explorations, the surface appearances throughout the country would indicate decidedly that so regular a line of demarcation as this at Quail Hill is the exception, and not the rule. The southwestern limit of the decomposed mass of Quail Hill has been found at several points; but here the change from the decomposed to the undecomposed rock is not so rapid; and though the explorations here, being shallow and limited, are insufficient to determine this point with certainty, it is not probable that any such regularity of demarcation exists here as upon the opposite side. Most of the "calico rock" of this belt still retains distinctly the structure of the undecomposed rock from which it was formed. The crystalline hornblende rock is thus seen to have been largely altered by the decomposing agency, and even the hornstone, which lay in its track, seems to have been more or less affected by it. The decomposition has been purely an oxidation, accompanied by such mechanical and chemical changes as filtering mineral waters might produce. It is probably superficial, both in origin and character, extending to no great depth, although the main level at Quail Hill is nearly 120 feet beneath the summit of the hill, and the decomposition of most of the rock at this depth, so far as exploration has gone, is as perfect as at any higher level.

It is certainly long subsequent in date to the metamorphism of the surrounding country, and is unquestionably largely due to the action of the products of the oxidation of metallic sulphurets (chiefly those of iron and copper) which were originally distributed through the rock. At the same time it is not easy to account for the whole of it in this way alone, since, at certain localities, undecomposed sulphurets are seen near the surface, and in rock which is apparently much more permeable to atmospheric influences than was much of that which has been more deeply decomposed; and, again, much of the decomposed rock, though retaining well its original structure, shows far too little traces of sulphurets to readily account for so general and thorough a decomposition as has taken place. It is all, indeed, more or less colored by oxide of iron, but much of it is not deeply colored, and the undecomposed hornblende rock itself, in the absence of all sulphurets, con-

tains sufficient iron in the state of protoxide to impart a strong coloring when the rock is decomposed and the iron passes to the state of sesquioxide. Much of the iron originally present has undoubtedly been removed in a soluble form, as sulphate, etc. But in rock which preserves its original structure, as well as most of this does, pyrites, if originally present, would have left traces of its existence in the form of casts or cavities in the decomposed mass, which might or might not have been filled with ferric oxide or other matter. In certain localities the decomposed rock is in fact filled with such cavities, often cubical in form, attesting the former presence of large quantities of disseminated sulphurets. But in other localities they are few and far between, and here accordingly the decomposition can hardly be supposed to have been due to the local presence of sulphurets alone.

The exact methods by which the general and local decomposition has been effected, and those by which the rock was originally impregnated with metallic ores,—as well as the manner in which certain substances, as baryta, now found as sulphate, and true perphyry, now found as kaolin or lithomarge, have found their present situation in the belt in question,—all these would possess both interest and importance in a high degree, could they be more definitely known. Such questions, however, cannot be answered with certainty, and their discussion here would lead us too far into the doubtful realm of chemical geology.

But whatever may have been the agencies at work, it is evident that there is nothing in all this to remind us of a true vein formation. It appears that the zone in question is neither a vein, nor, generally speaking, a system of veins. On the other hand, it possesses emphatically, in general, the characteristics of what the Germans style an impregnation;—an impregnation, indeed, which exhibits a certain regularity as being mostly confined within a narrow zone, and stretching through a considerable extent of country, but which within these limits shows the greatest irregularity of form and much variety of character. Veins of quartz occur here and there within the belt; but they are not more frequent here than elsewhere, and their occurrence has probably little or no direct connection with the peculiar character of the belt itself. There is very little that deserves the name of quartz at Quail Hill, though much of the surface is pretty highly silicious in character.

The impregnation of the rock with metallic sulphurets, particularly with sulphurets containing copper, has in certain localities been sufficiently powerful and concentrated to assume, in greater or less degree, the characteristics of segregated veins of limited extent. This has been the case at the Napoleon mine, and also at Quail Hill, where there is, or was, a band of oxidized ores of copper traversing the decomposed rock in a direction parallel with the general stratification. This band consisted chiefly of the green and blue carbonates of copper mingled with ferruginous and earthy matter, and accompanied by harytes. The last named mineral, so common a veinstone in other parts of the world, but hitherto so rare in California, occurs here in considerable quantity. Its form is granular compact, sometimes quite pure, but usually contaminated and intermingled with other matters. Crystallized specimens of it have not been found here to my knowledge. It is hardly probable that the harytes itself contains either gold or silver; yet it certainly occurs here in most intimate contact with both, as I have seen respectable particles of gold in place upon the immediate surface of compact specimens of harytes,—and a sample of heavy concentrated haryte sand from the tailings of the mill, of sufficient fineness to pass through a sieve of 100 holes to the linear inch, yielded to the assay over \$11 per ton in gold and silver.

The thickness of the copper band varied from one to three or four feet. Its outlines were indefinite, and its original characteristics of form, etc., much obscured by the complete decomposition both of itself and the surrounding rock. It was without doubt originally a segregated mass of sulphurets; and though it seems now to have nearly or quite run out and disappeared, it may be found to come in again, as such, in depth, unaltered below the line of surface decomposition.

Other hands of similar character may perhaps exist in the yet undeveloped portions of the mine. But the great mass of decomposed material which forms Quail Hill as a whole, retaining as it does to so great an extent its original structure of the country rock from which it was formed, can in no proper sense be called a vein; although its extent, when considered as a repository of the precious metals, is something far transcending this size of ordinary veins.

(To be Continued.)

Mining and Scientific Press.

W. B. EVER,..... SENIOR EDITOR.

C. W. M. SMITH,..... W. B. EVER,..... A. T. DEWEY.

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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office, Jan. 11, 1866.

Mr. C. T. Roney is our duly authorized agent for Sacramento County, Nov. 29, 1867.

Dr. L. G. Yates is our duly authorized traveling agent, July 6, 1867.

Mr. A. B. Butler is a duly authorized travelling agent for this paper, July 15, 1867.

Mr. H. C. Northrop, is our duly authorized agent for Oregon, Washington, Idaho, and Montana, Aug. 17, Nov. 26, 1867.

OUR NEW YORK AGENCY.—Mr. M. A. LATHROP, formerly of California, is our authorized Agent in New York. Parties in the Eastern States who desire to subscribe for or advertise in the MINING AND SCIENTIFIC PRESS, can address Mr. L., at No. 726 Broadway, for the present. Nov. 26, 1867.

San Francisco:

Saturday Morning, Feb. 15, 1868.

Notices to Correspondents.

A CORRESPONDENT, whose signature we are unable to decipher, sends us the following query: "I have a 36-inch engine with a 12-inch bore, which performs a certain amount of labor by making sixty revolutions per minute, and cuts off the steam after the piston travels twelve inches. Now, if I run the engine forty revolutions per minute, and cut off at eighteen inches, will it perform the same labor with the same economy in fuel?"

Reply.—Your engine, when making forty revolutions per minute and cutting off at eighteen inches, will give, with the same initial pressure of steam, eighty per cent. of the power that it would when making sixty revolutions per minute, and cutting off at twelve inches from the commencement of the stroke; and will consume the same amount of fuel. To perform the same amount of duty, when cutting off at eighteen inches, your engine will require to make forty-nine and one-half revolutions per minute, approximately, and consume, say twenty-three per cent. more fuel. The above statement does not take into consideration the clearances, steam passages, the manner of cutting off, or how the cylinder is conditioned for the prevention of radiation; all of which may modify the result. We expect, judging from the condition in which cut-off engines are generally found, that the duty when running at forty revolutions and cutting off at eighteen inches, will be in excess of what we have shown.

PROSPECTOR, Grass Valley.—The National Mineral Land Law requires that all locators of claims under that law, shall be made subject "to the local customs or the rules of miners, in the several mining districts," so far as such laws are not in conflict with the general laws of the United States; provided, however, "that no location hereafter made shall exceed two hundred feet in length along the vein, for each locator, with an additional claim for discovery to the discoverer." If the local laws of a district limit a claim to one hundred feet, the National law confines the locators in such district to the same limits. We have for sale at this office (price 25 cts.) all the forms and blanks necessary for use by persons who wish to avail themselves of the provisions of this law.

X. Y. Z.—Water is most effectually freed from atmospheric air, or other gases, as well as from all other foreign substances, by freezing. This is seen by the air bubbles formed in ice. In consequence of this property, it is a frequent practice with the wealthier Russians to expose wine to intense cold, so that the alcohol and flavoring matters present become separated from the crystallized water, and an intensified cordial is thus obtained. Ice so formed when melted is found to be free from air, if melted out of contact with the atmosphere, and may be heated without ebullition to nearly 300°, when in place of boiling it explodes! Many consider that the explosion of boilers in many cases occur from a similar cause.

EXPECTED ARRIVAL.—The steamer Great Republic sailed from Hongkong, for this port, on the 17th of January, and will be due here to-morrow or Monday.

"Joule's Equivalent"—What is it?

As Science advances, doctrines which served, each in its turn, a good purpose, and which were sufficient for their day and generation, are successively abandoned for others which more fully meet the requirements of accumulating demonstrated truths, and more fully satisfy the maturing intellect of the age. Thus, in the course of the researches into the nature of heat, the hypothesis of caloric, which was taught to our grandfathers, took the place of the older phlogiston. The caloric doctrine is now itself found wanting. Heat is no longer material; it is simply a "mode of motion." In other words, it is a form of force. The doctrine of the day is that force is indestructible; and that all modes or forms of force are mutually convertible. Heat, light, electricity, magnetism, mechanical motion, chemical action, gravitation, are but modes of exhibition of one and the same thing, viz: force. A definite quantity of each can be converted into a definite quantity of either of the others; and these again may be reconverted into the first. Thus, the chemical union, during combustion, of a given amount of carbon with a given amount of oxygen, produces a given amount of heat. This may be made, through the medium of machinery, to produce a given amount of mechanical force or motion. Of this amount of force, a portion is reconverted at once into heat, by the friction of the machinery. The remainder may be employed in raising a weight to a height in falling from which it strikes the earth with sufficient force to generate at once an amount of heat equal to the remainder of the original quantity. Gravitation, or the attraction of matter for matter, produces heat by the sudden meeting of masses; not,—as the caloric doctrine would explain, by setting free the "latent heat" which occupied the space between the particles of those masses,—but by converting the motion of the masses into a motion of their particles. This motion of particles is communicated to the surrounding particles of air, and although not lost, it ceases to be evident to the senses, as the equilibrium in temperature becomes restored. Thus no force is annihilated. The amount then, in the universe, is always the same; it varies only in form; and the various forms being convertible one into another, a definite amount bears a definite relation to each of the others,—in other words, has its equivalent in each.

The meaning of the expression, "mechanical equivalent of heat," will now be apparent. It is the amount of mechanical work necessary to produce a sufficient amount of heat to raise the temperature of one pound of water one degree of Fahrenheit;—this one pound of water raised one degree being taken as the unit of heat. This may be done by friction, or by percussion. Or, what is essentially the same thing, it is the amount of work necessary to raise one pound to a height in falling from which it would generate sufficient heat to raise one pound of water one degree in temperature. Or, again, it is the height, in feet, from which a weight of one pound must fall, to raise one pound of water one degree. One pound one foot, is the unit of work, as one pound one degree is the unit of heat. The unit of work is termed a foot-pound.

Dr. J. P. Joule, of Manchester, England, after long and careful experimentation, determined, about the year 1845, upon 772 as the number which shows the relation between work and heat. That is to say,—determined that 772 units of force were equivalent to, or would produce, one unit of heat. The fall of a weight of one pound through 772 feet, or, conversely, of 772 pounds through one foot, will produce sufficient heat to raise the temperature of one pound of water one degree of Fahrenheit. The mechanical equivalent of heat, then, is 772 foot-pounds. It is perhaps unnecessary to remark, that the figures would be different, if

the Centigrade, or any other thermometrical scale than that of Fahrenheit, were used. The determination of this point is considered the corner stone of the edifice which is being erected upon the new philosophy of force as a foundation; and as Dr. Joule is esteemed the one among the investigators of the subject who has reduced it to the greatest nicety, it has been called "Joule's equivalent." It is designated by the sign J.

Before proceeding to describe the manner in which Dr. Joule conducted his experiments, it is proper to mention the name of the man who was the pioneer in this new field;—and to whom, more than to any other, science is indebted for the opening up of this splendid generalization. The greatest minds are those who, with the quick insight of genius, perceive the fallacies of generally received doctrines, and lead off in opposition to the scientific belief of their time. To a Yankee boy belongs the credit here.

Benjamin Thompson, afterwards known as Count Rumford, was born in Woburn, Mass, in 1753. When quite a young man, he taught school in Concord, N. H., then the village of Rumford. At the commencement of the Revolutionary war, being charged with toryism, he left the country, and went to Europe. His talents soon secured him a government position, and in due time he was knighted. In 1784, he entered the service of the Elector of Bavaria. He made himself conspicuous by the reforms of various kinds,—military, economical and social,—which he accomplished; and for his valuable services was made Count of the Empire. He selected as his title the name of the little New England village aforesaid, and from that time was known as Count Rumford. In 1798 he returned to England; and having received a formal invitation from the American Government to return to his native land, was about to do so;—but becoming engaged in the work of founding the Royal Institution of England, he abandoned the idea. He afterwards went to France; became one of the eight foreign associates of the Academy of Sciences; and died in that country in 1814.

While superintending the arsenal at Munich, the great amount of heat generated in the boring of cannon attracted his attention. He soon came to the conclusion that the theory of "latent heat" would not account for the facts; and accordingly commenced a series of experiments upon the subject. A large blunt steel borer was made to press upon the bottom of a cavity in the end of a metallic cylinder, continuously revolving in a box of water. The temperature of the water gradually increased;—and in two and a half hours it actually boiled. His delight thereat was unbounded; the source of the heat generated by friction was evidently inexhaustible; that heat could not, therefore, be material; he pronounced it "motion!" The days of "caloric" were ended. He continued his experiments until he reached a result very near to that at which Joule, fifty years afterward, finally arrived. The intervening generation looked with distrust upon the innovation. But the seed was sown; and time only was wanting to complete its germination. Without the knowledge of each other, several scientific men became meanwhile engaged at the same time in experimenting; and the tender plant at last emerged from the soil of doubt, and thenceforth steadily advanced towards its present triumphant blossoming.

Joule's experiments were essentially the following out of those of Rumford; but he varied them with great ingenuity. He caused a paddle-wheel of brass or iron to revolve in a water bath, by means of a weight like that of a clock. The gradual descent of this weight from a certain height of course generates the same amount of mechanical force, on the whole, as if it fell from that height; and this again is equal to the mechanical force expended in winding

up the weight, or in raising it from the ground to that height by any other means. The friction of the paddle-wheel raised the temperature of the water in which it was immersed; and the amount of that increase of temperature was measured by a delicate thermometer. He employed in a similar manner baths of oil, of air, and of mercury. He prepared also an apparatus in which air was condensed by mechanical force,—the amount of which force was known. The condensing apparatus being immersed in water, the change of temperature of that water, as ascertained by the thermometer, would give the amount of heat produced by the mechanical force aforesaid. He also made an electro-magnet to revolve with a definite velocity between the poles of a powerful magnet immersed in water,—thereby raising the temperature of the water to a definite degree. In short, his experiments were varied in every possible manner, and were of such delicacy, that in many cases he noted changes as slight as the one-thousandth part of one degree of Fahrenheit's scale. We have not space to go minutely into the description of these experiments; we have already given their result, and the figures fixed by him after seven years' devotion to the subject.

As we have said, the determination of this point is a most important step in that new philosophy which is leading the present generation onward to such magnificent conclusions. It virtually establishes the truth of that philosophy; and gives us a standpoint from which we can look around upon a field of view immensely enlarged,—and can grasp, with ease, truths which before were beyond our reach. It prepares us to learn that *our very existence is dependent upon mechanical motion*. Do we realize the stupendous thought that the heat of the sun itself is probably maintained by the plunging into it of more than one hundred billions of tons of asteroids every minute? The heat which is generated by the contact of such immense masses moving with such tremendous velocity, is far beyond that produced by the intensest chemical action. It is this "wreck of matter and crush of worlds,"—this melting and dissolving of the elements "with fervent heat,"—that supplies heat and light and life to those orbs which yet remain. Their time is not yet come. It is the mechanical effect of clashing masses, that is the grand ultimate fact of the material Universe. That fact, however, could be,—for us,—hypothesis only, but for the conception and determination of the MECHANICAL EQUIVALENT OF HEAT.

THE NEW BLASTING POWDER.—INTERESTING EXPERIMENTS.—A large number of scientific and other gentlemen interested in blasting powder experiments, went over to Lime Point, yesterday, on board the steam tug *Gothia*, to witness a series of experiments with the new German blasting powder, the manufacture of which is about to be introduced into this city by a company of capitalists recently organized for that purpose. A large number of experiments were tried in the presence of the company, the first of which consisted in charging two 32-pound cannon balls with the powder which was placed in three-quarter-inch holes drilled to the depth of three inches into the solid iron; the powder was loosely tamped by hand, with a stick. The explosion burst the solid iron into innumerable fragments—a feat which it would have been impossible to accomplish with ordinary powder. Quite a number of other experiments were tried in different kinds of rock, most of which, however, was unsuitable to show the superiority of this powder, which is more particularly calculated to act upon very hard, compact rock. We have no space to-day to enter into a detail of what appears to be the advantages of this new blasting agent. We can merely say here that it is designed to become a most powerful and superior explosive agent. It appears to possess all the acknowledged advantages of nitro-glycerine combined, so far as is yet known, with a far greater degree of safety from accident than ordinary gunpowder.

Second Trial of the Steam Plow.

Messrs. Coffin & Standish submitted their steam plow to a second trial on Thursday of last week. A large number of gentlemen interested in agriculture and machinery, and others who were interested generally in all improvements tending to develop the resources of our State, were present on this occasion. Some little improvements have been introduced since the first trial, which worked very satisfactorily; and this second trial proved quite as much of a success as the first. No one who has seen the machine in operation, so far as we have heard, express any doubt as to its success—especially upon ground free from heavy stones and roots. No other implement was ever put into the ground which does its work so effectually and thoroughly as does this. Experience in farming everywhere goes to show that a thorough pulverization adds greatly to the yield of grain per acre. This advantage alone which it possesses over ordinary plows, considering the immense extent of ground which it will prepare each season, will soon pay for its cost. A thorough turning over, stirring up, and pulverization of the soil, enables the grain to secure all the nutriment which it needs, provided such nutriment is contained in the ground. Soil that is left coarse and lumpy, as it usually is after ordinary cultivation, cannot supply the growing and maturing grain with the proper food for its healthy sustenance.

Experience will no doubt enable the inventor to add still further improvements from time to time, as necessity or convenience may call for them. No piece of machinery ever sprang at once into full and complete perfection. Mr. Coffin is just the man to follow up the work so auspiciously begun; and no country can produce a better mechanic to meet any exigencies which may arise than is found in Mr. Standish.

Arrangements have already been made through the MINING AND SCIENTIFIC PRESS PATENT AGENCY to secure patents for the invention in all the principal countries of Europe, and their manufacture will be commenced forthwith. Half a dozen or more of these plows could be sold immediately, at almost any price, if they were ready, upon the strength of the trials already made. Preparations for the manufacture of such machinery will require considerable time and a large amount of capital. We are not advised as to what will be their cost; but we presume they cannot be built for less than from six to ten thousand dollars. What a triumph it will be for California to furnish the world with the first effective and practical locomotive steam plow—one that will perform its work more completely than any heretofore devised, and which will plow, sow and cover, at one operation, from forty to fifty acres per day! One other important advantage of this plow is, that it will put in good condition ground which is so wet as to be utterly impracticable to the work of any other plow. It does not turn the wet soil up in lumps or big flakes, no matter how wet the soil is, if it is not so plastic as to run. It cuts it up into fine bits—it mimes it when wet, and powders it when dry. Speed the plow!

PSYCHOLOGY in connection with electricity as a curative agent, is the subject of a course of lectures in progress of delivery every Wednesday evening at Dashaway Hall, in this city, by Drs. Sparks and Benton. Owing to the close relation of the mental to the physical, and the mutual dependence of the one upon the other, it is claimed that the influence over the mind of the patient by the Psychologist gives him a lever of power for sanative purposes, which in many instances seems truly wonderful. As the subject is in itself somewhat novel and interesting, and the lectures are followed by experiments upon persons present in the audience, they cannot fail to afford both amusement and instruction, while the fee for admittance is merely nominal and within the reach of all.

Float Batteries.

"Float batteries," as they are called, are now being quite generally introduced into most of our principal quartz mining districts. These batteries are so called from the fact that the stamping is done under water, and the pulverized material discharged by the simple overflowing of the water. In order to give our readers, who may not be familiar with this description of battery, a clear idea of the same, we give herewith a rough outline of one.



In the figure, A represents a solid plank, about the thickness and depth of the usual screen frame. B represents a screen of No. 18 or 20 wire, about three inches wide, and extending entirely across the front of the battery. C represents the lower part of a stamp, when up and ready to drop. The different degrees of fineness to which it may be desirable to reduce the rock is regulated by the elevation of the plank A.

As the water stands at a level with the bottom of the screen, it will be seen that the stamp is never lifted entirely out of the water; by this arrangement the splashing and forcing of the pulp through the meshes of the screen are avoided, the discharge consisting only of such portions of the rock as are crushed sufficiently fine to float over the top of the battery. The narrow screens that are used, are employed merely to arrest any large particles of quartz which may be thrown outwards by the blows of the stamps with sufficient momentum to rise above the surface of the water.

This description of battery was first introduced into use about three years ago by Mr. John Pattison, of Nevada, and, we believe, is a device of his own which he has given to the world. Wherever it has been tried, so far as we have heard, it has given good satisfaction. The secret of success in working consists in short rapid strokes—seventy to eighty per minute—considerably faster than stamps are ordinarily run.

PUTNAM FOR FEBRUARY.—H. H. Bancroft & Co., the publishers of this magazine for the Pacific Coast, have sent us a copy of the issue for the present month. It contains an interesting biographical sketch of Fitz-Greene Halleck, with an excellent portrait of the poet, engraved by Charles Burt from an original drawing by Greenough. The story, "Too True," increases in interest. It is really, as it claims to be, "an American story of to-day." Perhaps nowhere but in New York and vicinity could the material for its characters be found. In that region, the vulgar nabob of shoddy is often seen side by side with the quiet gentleman of moderate income. The latest translators of Dante are compared and contrasted in an interesting article. We have not space to mention all the good things in this number.

PROGRESS OF THE CENTRAL PACIFIC RAILROAD.—A correspondent of the *Bulletin*, writing from Cisco, February 6th, says: The road is now finished to the summit, and with a single break of about five miles at the lower side of Donner Lake, it is also complete to a point 24 miles down the Truckee, in Nevada. This line of five miles is graded, and by the first day of June the connection will be made. At the same time that the five miles is being put in working order the track will be laid from the point on the Truckee river to a point still farther on, where the road approaches nearest to Virginia City. The first train which crosses the summit, June 1, 1868, will set its passengers down within sixteen miles of the Comstock ledge. By the same day, gangs of 10,000 laborers will be thrown out along the line of the Truckee and Humboldt, towards Salt Lake; and by the end of the present year, 300 miles of railroad will be laid down and put in running order.

GOVERNMENT EXPENSES.—Commissioner Welles, in his second annual report, says that the National expenses can and should be reduced from their present extent of about \$372,000,000, to \$290,000,000—thus effecting a saving of \$82,000,000. Of this saving he proposes to cut off \$32,000,000 from the taxes of the people, by remitting altogether the tax on cotton and all manufactured articles, except spirits and tobacco. The balance—\$50,000,000—he would have go towards decreasing the principal of the National debt.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. LUTY, Secretary. Office, 308 Montgomery street, corner of Pine, San Francisco. 2v15

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trade supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 2v15-3m

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block, San Francisco. 6v16-aim

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. DR. BEERS, corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 16v14-4f

MINERS, VISITORS to mining districts, R. R. EMPLOYEES, and TRAVELERS generally, should insure against all accidents in the Traveler's Life and Accident Insurance Company of Hartford before leaving the city.

WM. McDONALD & CO., Gen'l Agents, 121 Montgomery St., opp. Occidental Hotel. 7v16-q9p

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The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required. WM. McDONALD & CO., Gen'l Agents, 121 Montgomery st., San Francisco, Opposite Occidental Hotel. 2v16-3m

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CARD.

THE UNDERSIGNED, SINCE DISPOSING OF HIS Gallery on Montgomery street, has seldom been in the street without being asked where the best photographs were taken. Now, for the benefit of his friends and the public generally, he would recommend them to go to the COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY, No. 221 Kearny street, now owned and occupied by Messrs. HALSEY & SCRIPTURE. Both of these gentlemen are professional photographic artists—one of them having been in the business more than twenty years—and cannot be surpassed by any one in the State. Persons wishing photographs taken will do well to give them a call. The above named gallery is one of the finest and most convenient in San Francisco, it being situated on the second floor, and its proprietors are the most accommodating and gentlemanly men in the business. JAMES WISE, Portrait Painter. N. B.—Prices as low as at any other Gallery in the city.

Solar Printing for the Trade.

Also Stereoscopic Views of California Scenery, at wholesale and retail, at the Cosmopolitan Art and Photographic Gallery, No. 221 Kearny street. HALSEY & SCRIPTURE, Proprietors. 7v16-3m

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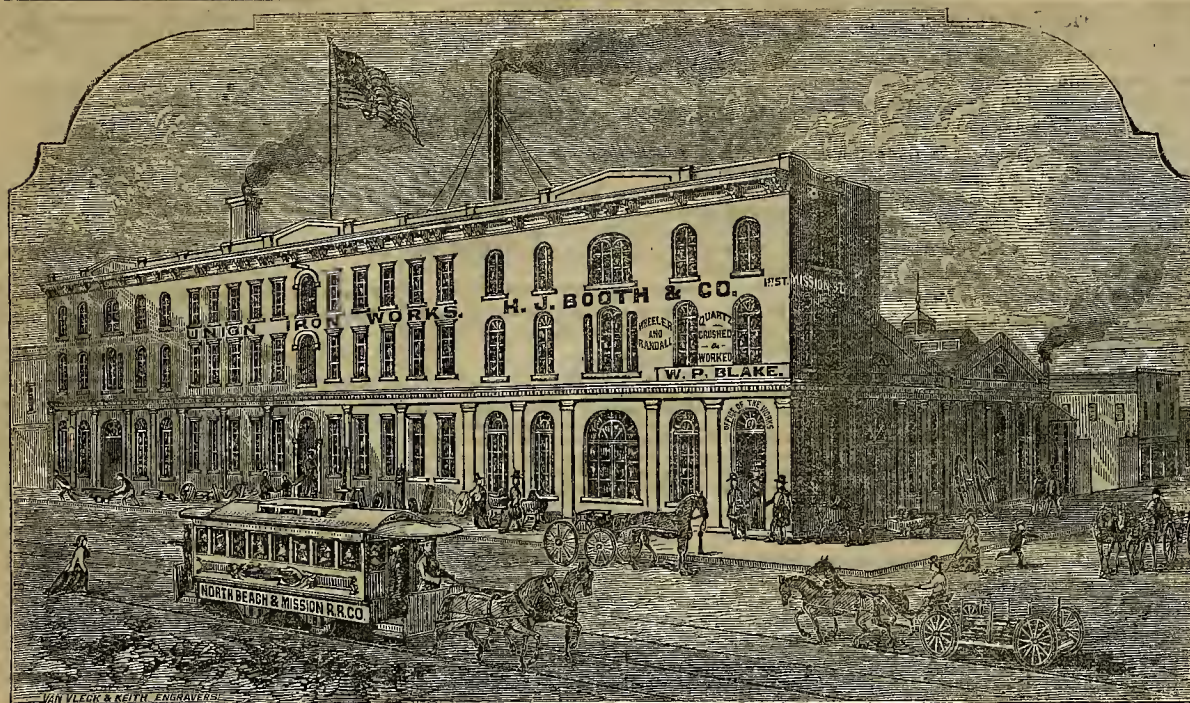
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NEW MEXICO.

Denver News, Jan. 22d: A correspondent writing from the Cimarron mines, Jan. 6th, says: The snow at present covers the entire face of the country to the depth of one foot, which, of course, puts a stop to all prospecting and mining for the present. All that can be done is to prepare for the spring.

There is very little mining property offered for sale. Claim owners generally think they have a good enough thing to warrant them to suffer a New Mexican winter in order to be on the ground when the water comes. Lodes are being looked after considerably. I was shown some very fair specimens of both gold and silver quartz, by Mr. Pollock, Mr. Newman, Mr. Branagan and other prospectors. It is their opinion that good lodes will be discovered in this district.

UTAH.

Reese River Reveille, Feb. 6th: Samples of ore from the North Star ledge, in Little Cottonwood Cañon, in the Wasatch range of mountains, Utah Territory, have been deposited at the office of Boalt & Stetefeldt for assay, the average yield of which was \$110 silver per ton. The ore was a fine grained, compact galena, of which the ledge is said to produce great masses. A small smelting furnace was erected in the vicinity of the mine, and a sample of the lead produced by it was also brought in, which yielded by assay at the rate of \$411 of silver to the ton.

REMOVING STAINS.—All cloths subject to be stained, such as table linens, napkins, children's clothes, towels, etc., ought to be examined before being put into any wash mixture or soap suds, as these render the stain permanent. Many stains will yield to good washing in pure soft warm water. Alcohol will remove almost any discoloration. Almost any stain or iron mold, or mildew, may be removed by dipping in a moderately strong citric acid, then covered with salt and kept in the sun. This may require to be repeated many times, but with us has never failed.—Country Gentleman.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MAILED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.

Hamburg, by Hamburg mail—2 cents each.

Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.

Lunenbourg, by Bremen mail—3 cents each.

Lunenbourg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.

Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.

Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—4 cents each.

Italy, by Bremen or Hamburg—5 cents each.

Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 1½ cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen and Hamburg mails via Trieste—8 cents each, and 2 cents per ½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.

Hamburg, by Hamburg mail—1 cent per ounce.

Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.

Lunenbourg, by Bremen mail—1½ cent per ounce, and 1½ cent per 1½ ounce.

Lunenbourg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.

Schleswig Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.

Sweden, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.

Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Italy, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per ½ ounce.

Turkey, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per ½ ounce.

Greece, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail by way of Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail, by way of Trieste—6½ cents per ounce, and 2 cents per ½ ounce.

PSYCHOLOGY AND PHYSIOLOGY.—Psychology is the science of Mind; Physiology is the science of Life. All who recognize the former as a science, declare its aim to be the elucidation of the laws of Thought, the nature of the Soul, and its prerogatives. This science may seek—and I follow those who think it *ought* to seek—important means of investigation in the laws of Physiology; just as Physiology itself must seek important aids in Chemistry and Physics. But as an independent branch of inquiry, its results cannot be held amenable to physiological canons; their validity cannot be decided by agreement or disagreement with physiological laws. To cite an example: Psychology announces that the mind has different faculties, and that each of these faculties may have a temporary exaltation, or a temporary suspension. This fact seems established on ample evidence, and is valid in Psychology, although hitherto no corresponding fact in Physiology has been discovered—neither the anatomy of the brain, nor any knowledge of the brain's action, can be adduced as furnishing the evidence; and if Psychology were absolutely amenable to the conclusions of Physiology, we should here have to doubt one of the most indisputable of psychological facts. On the other hand, it is no less certain that the physiology of the Nervous system must be studied free from all control on the part of psychologists. If we do not prescribe conclusions for them, neither must they prescribe conclusions for us. To them we leave the laws of thought. To us they must leave the difficult task of ascertaining the relation between Sensation and the various parts of the Nervous system.—*G. H. Leves.*

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13v12

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ESTABLISHED [MAY, 1860.]
VOLUME SIXTEEN

Mining and Scientific Press, COMMENCING JANUARY, 1868.

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2v161qy

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Steamer leaving San Francisco on the 10th touches at Manzanillo. All touch at Acapulco.
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These steamers will positively sail at 11 o'clock. Passengers are requested to have their baggage on board before 10 o'clock.

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Alamos, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the tenth (10th) day of January, 1888, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
S. B. Wipple	388	187	\$935 00
Wm. B. Hiler	299	21	100 00
Wm. B. Hiler	323	5	25 00
Wm. B. Hiler	399	25	125 00
Wm. B. Hiler	411	25	125 00

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of January, 1887, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Thursday, the fifth day of March, 1888, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. C. McCOMB, Secretary.
Office, corner Broadway and Battery streets. feb15

Nuestra Señora de Guadalupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Sonora, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 30) levied on the third day of January, 1888, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Bohn	17	10	\$10 00
John Bohn	173	6	6 00
Il Burdorf	191	10	10 00
Il Burdorf	192	15	15 00
Theo Gebler	194	65	65 00
John L. Smith	198	10	10 00
And of formerly unassessable stock—			
John Grefl	167	75	75 00
M. Kirsch	139	50	50 00
F. Stand	164	21	21 00
F. Wagner	176	5	5 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of January, 1888, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Badger & Chapman, auctioneers, N. W. corner of Kearny and California streets, San Francisco, California, on Tuesday, the third day of March, 1888, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco, Cal. feb15

Oxford Beta Tunnel and Mining Company, Esmeralda District and County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of February, 1888, an assessment (No. 25) of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, or to the Superintendent at the mine. Any stock upon which said assessment shall remain unpaid on the eighteenth day of March, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourth day of April, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEO. H. PECK, Secretary.
Office, 212 Clay street, San Francisco. feb15

Saeor Gold and Silver Mining Company.—Location of Works: Storey County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of February, 1888, an assessment of fifty cents (50c) per share was levied upon the capital stock of said Company, payable on the eleventh day of February, 1888, to the Secretary, at the office of the Company, Nos. 77 and 78 Montgomery Block, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the sixteenth day of March, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourth day of April, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. MOORE, Secretary.
Office, Nos. 77 and 78 Montgomery Block, San Francisco. feb15

Mining Notices—Continued.**Cordillera Gold and Silver Mining Company,** Chihuahua, Morelos Mining District, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of January, 1888, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Clauser, F.	40	5	\$5 00
James, B. F.	45	5	5 00
Dickson, John	137	25	25 00
Furnham, John	142	40	40 00
Gray, George	270	25	25 00
Dickson, John	147	21	21 00
Harris, Alfred	155	5	5 00
Harris, Alfred	157	5	5 00
Kelly, P. M.	159	3	3 00
Kelly, P. M.	228	5	5 00
Volliers, A. P.	233	6	6 00
Johnson, John	244	5	5 00
Priddy, W. E.	256	10	10 00
James Welch	100	13	13 00

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1888, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Monday, the seventeenth day of February, 1888, at the hour of 12 o'clock, M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY R. REED, Secretary.
Office, 321 Washington street, San Francisco, Cal. feb15

Adella Gold Mining Company, Rock Creek, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of February, 1888, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company, No. 429 Pacific street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the sixth (6th) day of March, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the thirtieth (30th) day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. C. TAYLOR, Secretary.
Office, 429 Pacific street, San Francisco, Cal. feb15

Arizona Consolidated Mining Company, Eureka District, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-third day of December, 1887, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Z. B. Heywood	170, 219, 226, 245	38 1/4	\$193 75
W. B. Heywood	201, 221, 247, 260, 270	10	5 00
Simon Sumers	44	25	125 00
Hall Hamon	225	5	5 00
William H. Hodges	129, 166, 211	65	325 00
Mary O. Leonard	283	10	50 00
L. A. Austin	297	10	50 00
J. B. Moore	87	10	50 00
A. F. Collins	236	65	325 00
Mrs. A. M. Feltus	44	5	25 00
Isaac Sampson	121, 273	16	80 00
A. Barlow	247	5	25 00
J. B. Stevens	287, 288, 293, 294	70	350 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of December, 1887, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction rooms of Olney & Co., No. 418 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1888, at the hour of 12 o'clock, M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

G. W. BUNNELL, Secretary.
Office, No. 611 Clay street, San Francisco. Jan1

Chilpancingo Mining Company—District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1888, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 318 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up-stairs, San Francisco. Jan25

Hope Gravel Mining Company—Location of Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of January, 1888, an assessment (No. 20) of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at the office of the Company, No. 533 Kearny street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventeenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 533 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. feb15

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the second day of January, 1888, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
I. Alexander	424	1	\$2 50
C. B. Richard	425	43	107 50
Benjamin Fishel	254	5	12 50
Benjamin Fishel	259	5	12 50
Louis Levy	201	5	12 50
Louis Levy	201	1	2 50
Isaac Michaels	375	5	12 50
H. Newman	434	1	2 50
H. Newman	435	10	25 00
Richard Pinckney	413	6	15 00
Richard Pinckney	416	1	2 50
Conrad Stolz	388	10	25 00
Conrad Stolz	387	10	25 00
Conrad Stolz	309	4	10 00
Henry Holm	335	5	12 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1888, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1888, at the hour of 12 o'clock, M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. SIEVERS, Secretary Pro tem.
Office, Nos. 312 and 314 Front street, San Francisco. Jan1

Keararge Mining Company, Keararge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1888, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at the office of the Company, 428 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the sixteenth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 403 California street, San Francisco. Jan25

Mount Tenabo Silver Mining Company—Location of Works: Cortez District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of January, 1888, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 428 Montgomery street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twentieth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twelfth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.
Office, 426 Montgomery street, San Francisco.

P. S.—An allowance on the above assessment of three per cent. will be made on all payments prior to the 31st inst. By order of the Board of Trustees.

R. N. VAN BRUNT, Secretary.

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1888, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up-stairs, San Francisco, California. Jan25

Rippon Gold and Silver Mining Company—Location of Works: Silver Mountain Mining District, Alpine County, State of California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the seventeenth day of December, 1887, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Chahlan	1	10	\$5 00
T. O. Owens	2	10	5 00
M. O. Owens	49	15	7 50
C. L. Gilbert	3	5	2 50
C. L. Gilbert	39	45	22 50
Thomas T. Brown	5	5	2 50
J. Bunting	7	5	2 50
James F. Stuart	8	5	2 50
William DeGraff	9	10	5 00
William DeGraff	10	8	4 00
James McNamara	12	5	2 50
James McNamara	13	5	2 50
J. L. Gullip	21	5	2 50
Samuel Williams	24	10	5 00
William McGill	25	6	3 00
Chas. Kather	26	10	5 00
Chas. Kather	27	12	6 00
C. E. Gibbs	28	10	5 00
John Bots	29	10	5 00
Helman Luchman	31	10	5 00
Chas. H. Zukum	32	10	5 00
A. W. Eckel	33	10	5 00
Thomas Martin	37	40	20 00
R. K. Smith	38	45	22 50
William P. Smith	39	5	2 50
William P. Smith	42	5	2 50
George Patterson	54	5	2 50
George Patterson	55	5	2 50
Thomas Gray	57	10	5 00
D. E. Sullivan	58	5	2 50
Jacob Strublin	59	10	5 00
C. Kerby	60	10	5 00
Jacob Jetter	61	12	6 00
Mrs. Sarah Winnie	63	10	5 00
F. M. Ellis	65	5	2 50
F. M. Ellis	66	5	2 50
M. Marks	67	5	2 50
John Smith	68	10	5 00
William West	69	5	2 50
H. D. Scott	70	10	5 00
M. Marks	71	25	12 50
N. H. Shinn	72	20	10 00
James Gibson	75	5	2 50
B. Curran	76	109	54 50
W. L. Farmer	77	7	3 50
L. Farmer	78	1	5 00
Edward Campbell	109	25	12 50
T. C. Riddell	112	10	5 00
K. K. Swift	113	10	5 00
Ole Halverson	126	10	5 00
Thomas Crangle	129	20	10 00
Edward Keefe	131	10	5 00
John Maloney	133	10	5 00
Undrawn Stock		811	405 50

And in accordance with law, and an order of the Board of Trustees, made on the seventeenth day of December, 1887, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Saturday, the eighth day of February, 1888, at the hour of 12 o'clock, M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

P. CARROLL, Secretary.
Office, No. 87 Stevenson street, between First and Second, San Francisco. dec21

Postponement.—The above sale is hereby postponed until Thursday, the fifth day of March, 1888, at the same hour and place. By order of the Board of Trustees.

feb1 P. CARROLL, Secretary.

Ventana Gold and Silver Mining Company—Location of Works: Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of January, 1888, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon each and every share of unassessable stock of the capital stock of said Company, payable forthwith in United States gold coin, to the Secretary, southwest corner Stewart and Folsom streets, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the tenth day of February, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the twenty-seventh day of February, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. W. SCOTT, Secretary.
Office, southwest corner of Stewart and Folsom streets, San Francisco. Jan1

Postponement.—The day for deemed stock delinquent on the above assessment is hereby postponed until Thursday, the twenty-seventh day of February, 1888, and the sale thereof until Tuesday, the twenty-fourth day of March, 1888. By order of the Board of Trustees.

feb15 A. W. SCOTT, Secretary.

Welch Quicksilver, Silver and Copper Mining Company, Mount Diablo Mining District, Contra Costa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of January, 1888, an assessment of three dollars (\$3) per share was levied upon the capital stock of said Company, payable on the tenth day of March, 1888, to the Secretary, George Byles, at his office, Room No. 15 Stevenson House, southwest corner of Montgomery and California streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of March, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of April, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

GEORGE BYLES, Secretary.
Office, Room No. 15 Stevenson House, S. W. corner Montgomery and California streets, San Francisco. Jan25

Olney & Co., Auctioneers and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. no10**Economy in Advertising.**—The Mining and Scientific Press is the best and most economical mining advertising medium in this city. Our terms are less than any other rates now charged by daily newspapers, and the mining community are beginning to appreciate our reasonable rates of advertising. The Press contains, proportionally a larger amount of mining advertising than any other paper on the Pacific coast. Its character renders it the proper journal for the concentration of mining patronage.**MOSHEIMER'S****Pioneer Mining School.**

Office, 348 Montgomery Street,
SAN FRANCISCO.

MOSHEIMER'S**NEW ROASTING FURNACE.**

Patent applied for.

This Furnace has proven the most successful of any ever built on this Coast. A great number are in use now, and many in course of construction. Their superiority over all other furnaces, is as follows:

- 1.—The cost of building is only \$300 for a one ton Furnace.
- 2.—They require less than half a cord of wood per ton of ore.
- 3.—The ore is roasted to a spongy condition; while in a common Reverberatory it cakes into globules.
- 4.—It is a saving of 50 per cent. of labor over any Furnace in use.

A full size working Furnace can be seen at my Metallurgical Works in this city, by applying at my office.

JOS. MOSHEIMER,

328 Montgomery street, San Francisco.

A Sulphuret Mine Wanted.

Any party having for sale a Mine, with Gold-Bearing Sulphurets, of not less than 15 per cent., and which pay at least \$50 per ton, can find a purchaser by addressing, in writing, particulars to

JOS. MOSHEIMER,

5v16-3m

San Francisco.

Pacific Chemical Works.

**Aqua Ammonia,
Acetic Acid,
Acids Chemically Pure,
Nitrate of Silver,
Cyanide of Potassium,
AND CHEMICALS OF ALL KINDS,**

Manufactured by the PACIFIC CHEMICAL WORKS,

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merit.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pulp being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and so to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers make on the same principle excel all others. They bring the pulp so constantly in contact with the quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and sellers for themselves, at the

PACIFIC FOUNDRY,
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Works Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works,
San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

-BY-

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
San Francisco.

DR. BEERS' PATENT

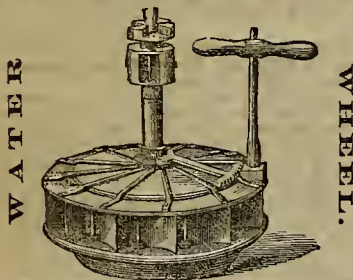
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND Placer Miners, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this loss alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address

Dr. E. BEERS, San Francisco,
Per Wells, Fargo & Co's Express.

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALLED AND UNRIVALLED IN the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc., etc.

CALIFORNIA REFERENCES.—E. Stockton, Folsom; O. Simmons, Oakland, (Mill at Clear Lake); Morgan Coville, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County.

KNAPP & GRANT,
Agents for California.

NOTICE TO MERCHANTS

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; as goods require no landing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,
By Joseph Moore, President.
JOSEPH MOORE.

HUNGERFORD'S

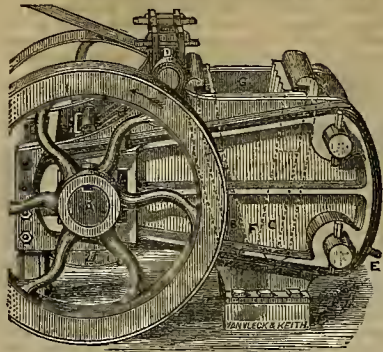
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

MORAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600
No. 2—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour.....\$500
No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200

EXPLANATION OF THE ABOVE EXPOSING.

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa County, Rawhide Ranch, Tuolumne County, Excelsior Mine, Lake District, Nevada County, and can be seen in operation at the Fulton Foundry, First Street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County.

RAWHIDE RANCH, Tuolumne Co., Sept. 23, 1866.

JAMES BROWN, Esq., San Francisco—My Dear Sir: I give you pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,

R. P. JOHNSON,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal process, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below.

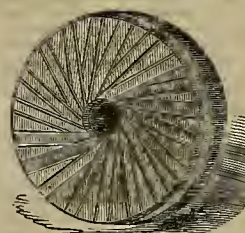
A diagram, with explanation of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WINDBLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or Express Building, 402 Montgomery street, San Francisco.

C. F. TRAVIS,



MANUFACTURER OF FRENCH BURR MILL-STONES, AND PORTABLE MILLS.

Agent for Dufour & Co's Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt; Mill-Stones Balanced with Fellenham's Patent Balance, of which I am sole proprietor for California, Oregon, and Washington Territory.

C. F. TRAVIS,
109 Mission street, San Francisco.

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth, refers to Eisen Bros, Pioneer Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturing.

PATINSON'S
HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them into, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

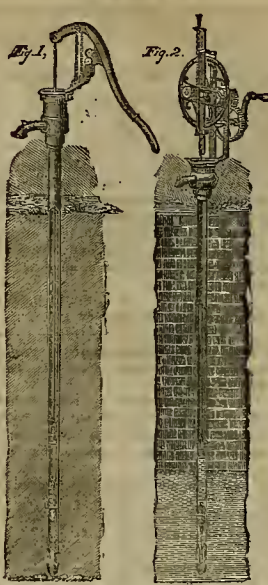
THOMAS PATINSON

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.

PARTIES WISHING TO PURCHASE WILL SAVE 50 percent by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco.

Avery's Great National Pump and Well.



This Well is formed by driving metallic tubes into the ground until water is reached. The valves are then dropped down the pipe, then the pipe is raised six inches to allow free ingress of water. The Pump is now ready to work. For the first thirty minutes we draw up earth, etc., till a vacuum is formed, which makes the Well.

This Pump has proved itself to be the greatest invention of the age. It will raise water 500 feet. State, County and Town Rights for sale. Pumps furnished at moderate prices, by

Agent for California and Nevada,
S. P. ROBERTS,
318 Pine street, San Francisco.

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other materials are crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,
1415 1/2 St. Agents for the Pacific Coast.

PACIFIC
FILE, REAPER AND MOWER SECTION
Manufactory,

No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.

22nd First premium awarded at the State Fair, 1867.

26x15-3ins DURNING & KENNEY, Proprietors.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Slip Plumbing done.

M. PRAG,
5x13-1y Stove Store, No. 125 Clay street, below Davis.

A FULL ASSORTMENT OF

TWIST DRILLS,
At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

—ALSO—

Steam Gauges, a general assortment of Hardware, Cutlery, and MECHANICS' TOOLS,
By H. AS. OTTO & CO.,
312 Bush street, San Francisco.

A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,
Constantly on hand and for sale by
CHAS. OTTO & CO.,
312 Bush street.

A FULL ASSORTMENT OF

Molders' Tools,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco.

NELSON & DOBLE,
AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk

Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,
319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco.

LIFE IN BRAZIL.—The following extracts are from the new book on Brazil, by Agassiz: "The sun had set before we drove into the pretty town of Petropolis, the summer paradise of Rio Jeneirans whose circumstances enable them to leave the heat and dirt and vile smells of the city for the pure and enchanting views of the Sierra. In a central position stands the summer palace of the Emperor, a far gayer and more cheerful looking edifice than the palace at San Christoval. Here he passes six months of the year. Through the midst of the town runs the pretty river Piabana, a swallow stream, now rippling along in the bottom of its bed between high green banks; but we are told that a night of rain in the hot season is enough to swell its waters till they overflow and flood the road. I could not but think how easy it would be for any one who cares to see tropical scenery to come here, when the direct line of steamers from New York is established, and, instead of going to Newport and Nabant, to take a house in Petropolis for the summer. It commands all the most beautiful scenery about Rio, and the horseback rides are without end. During our summer the weather is delightful here, just admitting a semblance of wood-fire morning and evening, while the orange orchards are golden with fruit, and flowers are everywhere." * * "Just behind the house, on the slope of the hill, is the orangery. I am never tired of these golden orchards, and this was one of special beauty. The small, deep-colored tangerines, sometimes twenty or thirty in one cluster; the large, choice orange, 'Laranja selecta,' as it is called, often ten or twelve together in a single bunch, and bearing the branches to the ground with their weight; the paler 'Limon dulce,' or sweet lemon, rather insipid, but greatly esteemed here for its cool, refreshing properties—all these, with many others—for the variety of oranges is far greater than we of the temperate zone conceive it to be—make a mass of color in which gold, deep orange, and pale yellow are blended wonderfully with the background of green. Beyond the house enclosure, on the opposite side of the road, are the gardens, with aviary, and fish-ponds in the center. With these exceptions, all of the property which is not forest is devoted to coffee, covering all the hillsides for miles around. The seed is planted in nurseries especially prepared, where it undergoes its first year's growth. It is then transplanted to its permanent home, and begins to bear in about three years, the first crop being of course a very light one. From that time forward, under good care and with favorable soil, it will continue to bear and even to yield two crops or more annually, for thirty years in succession. At that time the shrubs and the soil are alike exhausted, and, according to the custom of the country, the fazendero cuts down a new forest and begins a new plantation, completely abandoning his old one, without a thought of redeeming or fertilizing the exhausted land."

GENTLEMEN FARMERS.—In Prussia there is a class of employees who are not found in any other country. These are educated young men belonging to families in a good position, often just leaving an agricultural college, who remain for a certain time on some large estate to initiate themselves in the practical direction of one of their own. This novitiate is an ancient custom still preserved in many trades. Thus, frequently, the son of a rich hotel-keeper will not hesitate to enter another hotel as butler or waiter (Kellner), to be initiated into all the details of the service over which he will one day have to preside. When any one visits the farms (Rittergut) he is astonished to see as superintendents the son of a banker, a baron, or a rich landowner. These young people drive a cart or guide the plow. At noon they return, groom their horses, and then go and dress themselves and dine at the owner's table, to whom they are not inferior, either in instruction, birth, or manners. After the meal, they resume their working dress, and return, without any false shame, to their rustic occupation. Thus we find in feudal Prussia a trait of manners suited to the democratic society of the United States, and which hereafter will become general.

CABLE RECEIPTS.—Since the reduction of the Atlantic Cable telegraph tariff on the 1st of December last, the average from that day to the 31st of that month, has been \$1,070 per day, as compared with an average of \$808 per day during the month of December, 1866; this is an increase of over \$260 per day, or at the rate of \$95,000 per annum, irrespective of the result that may be anticipated when commerce and speculation resume their usual activity. During the present month there has been a still greater expansion, the receipts now being upward of \$1,300 per day.

DIET vs. MEDICINE.—Dr. O. W. Holmes, no less noted as a physician than as a poet and wit, makes the following remarks upon this subject in "Border Lines":

"I cannot help believing that medical curative treatment will by and by resolve itself in great measure into modifications of the food, swallowed and breathed, and of the natural stimuli, and that less will be expected from specifics and noxious disturbing agents, either alien or assimilable. The noted mineral waters containing iron, sulphur, carbonic acid, supply nutritious or stimulating materials to the body as much as phosphato of lime and ammonical compounds do to the cereal plants. The effects of a milk and vegetable diet, of gluten bread in diabetes, of cod-liver oil in phthisis, even of such audacious innovations as the water-cure and the grape-cure, are only hints of what will be accomplished when we have learned to discover what organic elements are deficient or in excess in a case of chronic disease, and the best way of correcting the abnormal condition, just as an agriculturist ascertains the wants of his crops and modifies the composition of his soil. In acute febrile diseases we have long ago discovered that far above all drug-medication is the use of mild liquid diet in the period of excitement, and of stimulant and nutritious food in that of exhaustion. Hippocrates himself was as particular about his barley-pulsan as any Florence Nightingale of our time could be.

The present generation will make a vast stride forward, as I believe, in the direction of treatment by natural rather than violent agencies. What is it that makes the reputation of Sydenham, as the chief of English physicians? His prescriptions consisted principally of simples. An aperient or an opiate, a 'cardiac' or a tonic, may be commonly found in the midst of a somewhat fantastic miscellany of garden herbs. It was not by his pharmaceutical prescriptions that he gained his great name. It was by daring to order fresh air for small-pox patients, and riding on horseback for consumptives, in place of the smothering system, and the noxious and often loathsome rubbish of the established schools."

MAMMOTH CLOCK.—An immense clock, made by Mr. Hotchkiss, of New York, has recently been placed in the arsenal at Rock Island, Illinois. It will be connected by telegraph with the observatory at Chicago. It is thus described: The frame is eight feet long, three feet wide and seven feet high. The main time wheel is three feet in diameter. The pendulum is thirty-two feet long, and vibrates in three seconds, and the ball, weighing 400 pounds, is 4 feet in length by seven inches in diameter. The weight case is fifty-seven feet in height, and reaches down through three stories. The cord on which the weights are suspended is of wire, having strands of seven wires each. Of this wire cord, 250 feet are required for the striking cylinder, and 150 for the time. Each of these cylinders is eighteen inches in diameter.

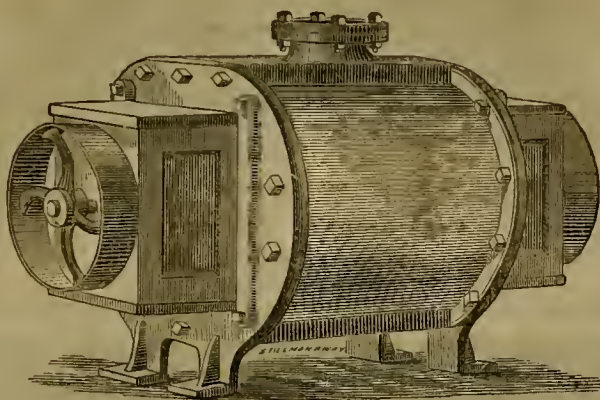
VOLCANES UNDER THE MISSISSIPPI.—The examination of the mud cones on the bar at the mouth of the Mississippi, lately made by Professor Hilgard, of the University of Mississippi, under the authority of the Smithsonian Institution, was, in part, laid before the Academy of Sciences, at its last meeting. These cones were found in various conditions in various portions of the bar, from the outer edge to the inner, generally in clusters, and were the only earth which seemed to be firm. These cones, when fresh and new, were thought to be a species of volcano, throwing forth salt water, though located in the midst of fresh, and gas. The latter was caught and hurned with readiness. There were craters formed upon and within them as clearly as in the lava-vomiting volcanic mountains. When these craters ceased to be active, the cones disintegrated and fell away. The products of the cones are to be the subject of chemical and microscopical examinations.—*New Orleans Picayune.*

SUBTERRANEAN CHAMBER.—A discovery has lately been made in the commune of Vouvray, France, of a subterranean chamber, apparently of the time of the Roman conquest. The chamber was filled with dust and stones, from which have been taken many curious objects—an ax of polished steel, pieces of bone, and parts of red vases, whose surface is carefully hurnished and decorated with elaborate designs. Much of this collection is made up of common pottery; coins were found, and needles, bracelets, and other ornaments, besides a hundred pieces of bronze money of the age and stamp of different Emperors, but principally of Marcus Aurelius, Constantine, etc., nearly all in good preservation.

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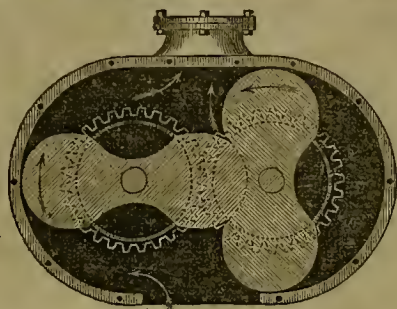
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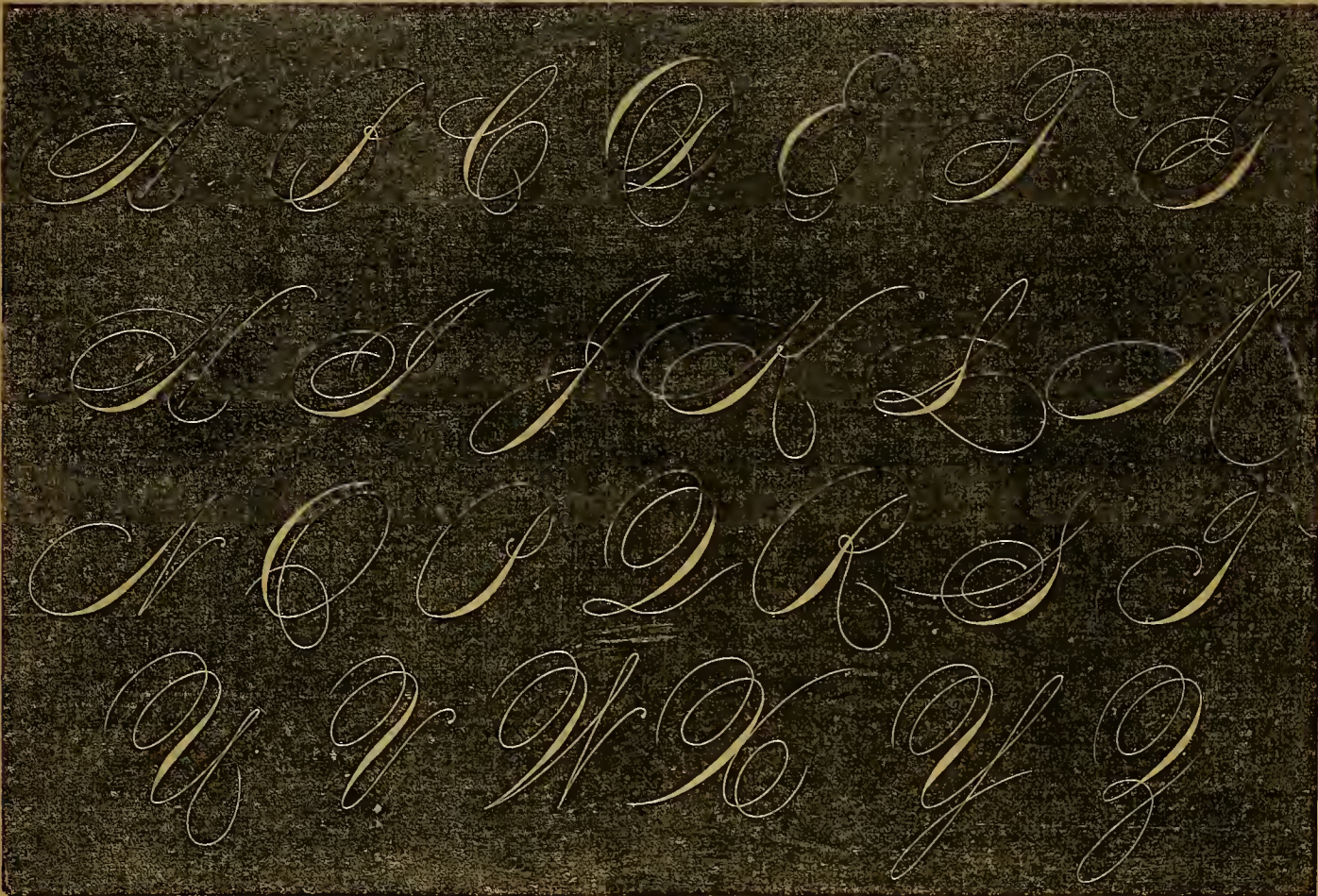
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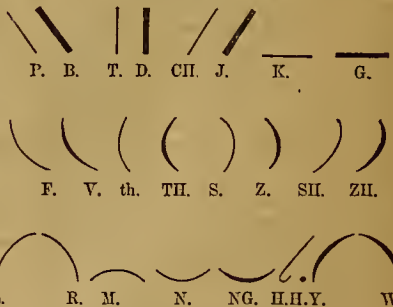
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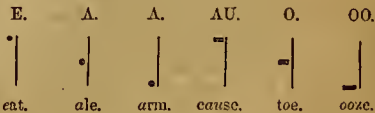
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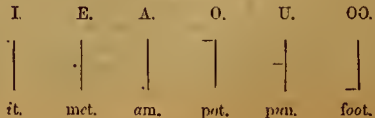


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veniences, that, for general advantage of work in its details, as well as neatness and symmetry of outward design, will compare favorably with the best arranged establish-ments of this kind in the country, excepting, perhaps, only some of the larger works on the Atlantic seaboard, where heavy ma-rine engines are built.

The illustration herewith presented shows the front elevation which the main building of the works will present on Beale street, a part of which is already erected, and the whole of which will probably be completed during the coming season, unless the rapid advance in the value of real estate shall continue so long as to compel a general

of 35,000 gallons per minute to a height of 27 feet. We were also shown a small portable engine, designed more particularly for running these pumps, which can be built for a small price, and which is so simple in construction that it can be run safely by almost any person that can manage an ordinary water-wheel. They have also several other descriptions of labor-saving machines, for placer and hydraulic mining, the man-ufacture of which they intend to make specialties, and some or all of which we shall probably illustrate in future issues of the Press.

A WORD TO MINERS.—The indications are that there will be a rush from all parts of the country to the new mines in Dacotah, in the spring, and we learn that parties are even now fitting out, intending to breast the difficulties of the trip, in order to be on hand when the spring opens. It seems that under some circumstances, men who ordinarily have good judg-ment and sound sense lose those faculties, and do acts under the excitement of the moment, which, in their cooler moments, they would reject as absurd. It would seem that California miners, above all other classes of per-sons, should weigh well their chances before allowing them-selves to be led off by excite-ments; certainly their experi-ence in such affairs is not the most encouraging.

The news thus far from those mines, is not of such a char-acter as to induce any person not laboring under a stubborn fit of mining fever to give up any lucrative business or labor, for the purpose of testing the truth of the bright side of the reports. Yet persons are always to be found ready to follow any and every will-o'-the-wisp that prom-ises even the smallest prospect

of reward, and in nine cases out of ten, they will find that they have not only been im-poverished in pocket, but also in health.

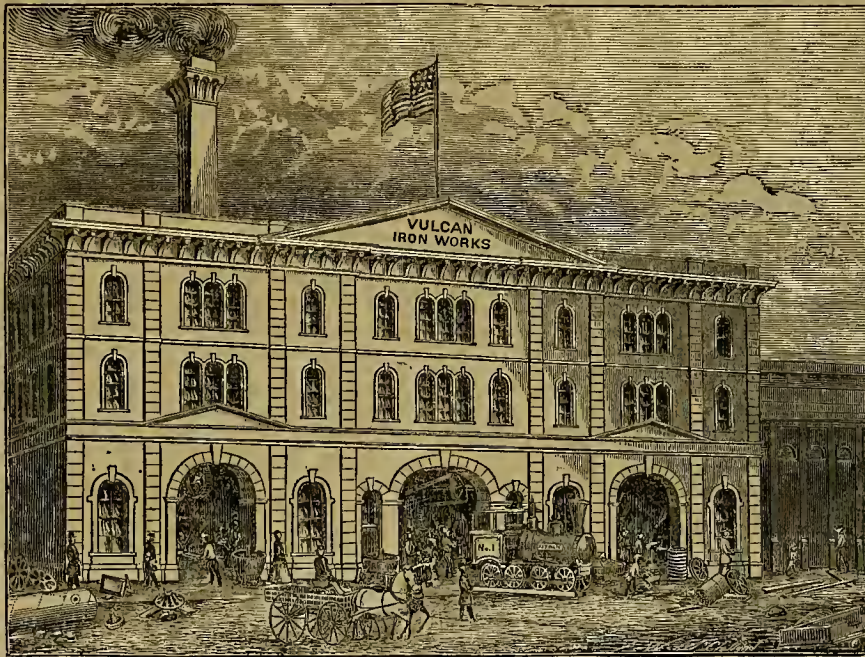
PRACTICAL MINING ENGINEER.—The card of J. S. Phillips, M. E., will be found in our advertising columns to-day. Mr. P. offers his services for the inspection and valuation of all kinds of mineral properties; also for superintending the construction or operation of smelting works, mining machinery, etc. Mr. P. produces credentials of high authority for his skill and experi-ence as a mining engineer, having had large experiences as a founder and mining and mechanical engineer in Cornwall and Devon, and other parts of England. He has recently been visiting, as an expert, the mines of eastern and northwestern Nevada in the interest of Eastern capitalists. His last engagement was to re-model and superin-tend the argentiferous smelting works at Torrey City, Nevada, where, we understand, he has succeeded in effectually reducing the very refractory argentiferous antimonial lead ores, the smelting of which had previ-ously been found impracticable. See his card.

Contributed for Our Cabinet.

Under this heading we shall continue to mention and de-scribe, according to merit, such specimens of ores, min-erals, fossils, curiosities, etc., as may be presented, or forwarded to us by mail or express, prepaid. Each article will be numbered and placed in our cabinet, and recorded with the name of the donor, and the claim or location from whence it came.

Mr. J. S. Phillips has placed upon our table a very fine sample of ore from the Torrey Mines, Humboldt County, Nevada, upon which furnaces have recently been erected. The ore consists of carbonate of lead and antimony, carrying about \$25 per ton of silver. We have numbered this specimen 191 in our cabinet collection. The same gentleman has also contributed a very fine furnace specimen, No. 192, the base of which consists chiefly of antimony, showing the peculiar form of crystallization due to that mineral. The surface is mostly covered with beautiful cubical crystals, com-posed, we presume, chiefly of lead, and containing about \$50 per ton of silver. There are other crystals of irregular form, containing, no doubt, a larger amount of antimony, to the presence of which the ir-regular form of crystallization is probab-ly due. This specimen was the result of a very slow cooling; that process having oc-cupied about one week of time.

We have received a package of ores from Esmeralda, forwarded by Mr. T. W. Ahra-ham, of Pino Groves, in that district. No. 1, being a specimen of the surface ore, and No. 2, sulphuret ore from Wheeler Co's mine. No. 3 is described as being below the average of surface ore, and No. 4 as above the average; No. 5, a very fine spec-imen of gold ore, the gold being seen in distinct particles interspersed throughout a very friable envelope of oxide of iron; No. 6 is sulphuret ore—the four last are from the Wilson mine. Mr. A. observes in a letter to Prof. Rowlandson, which ac-companied the specimen, that he considers those marked "above average," and "spec-imen," ought to pay from \$50 to \$75; in fact we should think that a very small part of a ton of the variety marked "specimen," ought to yield that amount. Of the sur-face rock, a portion will be retained by Prof. Rowlandson, as also the sulphurets, for more careful examination, the result of which will be communicated to Mr. A., by mail. We wish to impress upon our friend the great desirability that, when wishing to obtain an opinion respecting the value of a lead, that they should follow the example of Mr. Abraham, in selecting average sam-ples, and particularly in selecting excep-tional, and to what extent, when rich ores are for-warded as specimens.



PROPOSED NEW BUILDING OF THE VULCAN IRON WORKS.

employed on this coast is made in this city. The amount of foundry and machine work required to keep our hundreds, if not thou-sands of mills in operation and repair, and to provide the machinery for new mills that are constantly going up,—to say nothing of flour, cotton, woolen, sugar and other mills and manufacturing operations that are being called for,—demand the constant employ-ment of a good sized army of mechanics. So rapid, also, is the increase of the de-mand for machinery, that our foundries are almost yearly required to enlarge their works and facilities to keep pace with our growing industries. We are called upon every year to notice improvements of this character.

The purpose of the present article is to chronicle an important step in this direction by the proprietors of the Vulcan Iron Works. This concern, in view of the cer-tainty of increase of business, has deter-mined to enter upon a plan of improvements which can be made gradually progressive, and which, when completed, will form a systematic arrangement of shops and con-

movement of our foundrymen to a greater distance from the commercial center of the metropolis.

The Vulcan Iron Works are now occupy-ing 75 feet on First street, through to Fre-mont, and 137½ feet on both sides of Fre-mont street, then through to Beale, where they have a frontage of 182½ feet, which they propose shall eventually constitute the main front, and which will then present the elevation given in our engraving. At present these works share in the general stagnation of business due to the winter months, which have this year been of ex-traordinary severity. With the recent im-provements in the roads, etc., however, they are already picking up, and constantly tak-ing in more hands.

During a recent look through these works, we were shown a new centrifugal pump, which they are building and adapt-ing especially to miners' use, and to which they are turning particular attention, with the view of cheapening the same and bring-ing it within the reach of men of limited means. These pumps are equally adaptable to the heaviest and the lightest work, while one of small dimensions can be easily turned by hand. A pair of them have just been constructed for the Dry Dock Com-pany at South San Francisco, which is capable of raising the enormous quantity

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Freiberg, or Barrel Process, for the Reduction of Gold and Silver Ores.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER THIRTEEN.

Very recently in the course of this series it was noticed, quoting from the report of the Gould & Curry Company, that from the slimes the greater part of the silver was saved by the barrel mode, but not so with the gold. The following quotation from a recent arrival from Australia, on the contrary, serves to show that the barrel method is an excellent one for saving light or float gold from tailings:

NEW TREATMENT OF TAILINGS.—Some experiments in the treatment of tailings have lately been made at the Black Hill Co's works, by Mr. Newman, the manager, the results of which are so far eminently satisfactory. Allusions have been made on former occasions to the adoption of small cradles, one under each outlet from the ripple-boxes, in which it has been found that a very large proportion of the metallic sulphides can be collected before the sand passes over the blankets. This plan is found to double the former average yield got from the blanket alone, and to secure most of the gold existing in the pyrites, which is thus easily separated from the larger mass of quartz tailings. But Mr. Newman's researches led to a belief that there was still a quantity of free gold in an impalpable state, which got away with the sand and water, and it was resolved to ascertain what proportion this bore to the entire yield. A series of small experiments was first undertaken in a Wedgwood mortar, in which tailings were amalgamated for the space of a quarter of an hour, the mixture being merely stirred round, but not ground, so as to assimilate the operation as nearly as possible to that of an amalgamating harrel. The first three results showed a return of 4, 3, and 4 dwts. per ton respectively, and a trial on a larger scale was made in a revolving harrel. The result of treating 7½ cwt. of refuse tailings was 3 dwts, 6 grs. of gold, or at the rate of 8 dwts, 16 grs. per ton, being considerably more than the gross yield hitherto averaged. The time allowed in the barrel experiment was eight hours, as usually practiced with tailings from the blankets. There are still some unsettled questions as to the probable loss of quicksilver, and the feasibility of reducing the cost of the washing off after amalgamation, a process at present tedious, and forming a large item of expense. But if these difficulties should be overcome, and there are good reasons for believing that they may, there then only remains that a sufficient number of barrels be erected to treat the whole of the tailings at present running to waste from the mill. The expenditure for this purpose must of course be somewhat large, as from 50 to 60 barrels will be required, as an encouragement towards which the experiments and calculations made, go to prove that there is at least one-third more gold than can be saved by the present process, and as 3 dwts. per ton is the lowest paying average, it follows that 1 dwt. per ton remains to be collected by the new process, which even at a cost of 3s. per ton will yield a fair profit. It is probable, however, that the cost of treatment may be reduced below this, and if so the company has reason to congratulate itself on future prospects.—*Ballarat Star*.

It is highly probable that the discrepancies just noticed, are more apparent than real. In the first place, the slimes alluded to being in a very finely divided state, were in a favorable condition when exposed for any lengthened period to the joint action of moisture and the atmosphere, for causing the decomposition of the sulphurets present, and if salt was also present in the water, both basic sulphates and chlorides of iron—both of which are of an insoluble character—would thus be formed. Such basic salts, possessing an ochreous appearance, would alone be calculated to form a covering over the light, flakey gold, and so prevent its amalgamating with quicksilver. This tendency to envelop the precious metal would probably be still more

promoted in cases where the dichloride of mercury, either alone or in combination with chloride of silver, were by any chance simultaneously formed.

HINT FOR HALE & NORCROSS STOCKHOLDERS.

Reports of an exciting character were rife last week of a warfare being carried on between two parties struggling to obtain, at the general meeting of the stockholders of this company, which will take place in a few days, the control of the affairs of this mine. In place of an unfriendly struggle of the character alluded to, would it not be more beneficial to the *bona fide* stockholders,—by which term is meant to imply those who for some time have, and purpose to hold in future, an interest in the undertaking,—for some cool-headed party to advocate, at the forthcoming meeting, the propriety of setting on foot an inquiry into the cause why, in the course of reduction, so much silver is wasted—amounting to \$92.30 for every \$100 obtained,—or nearly one-half the silver contained in the ore, and forming a sum total of more than \$400,000 of silver bullion on 15,639 tons of ore; which sum, divided among 800 feet, would be equivalent to a loss of dividend to the extent of \$500 per foot for the period during which the above quantity of ore was being worked.

ONLY A RAILWAY "TRAIN."—The Washington correspondent of the New York *Sun* says that Mr. Train's business in England has not the remotest connection with Fenianism or any other political affairs. When he resided in London some eight years ago, he obtained from the Government a patent for street railways, or tramways as they are called there, with cars drawn by horses, and actually constructed one such railway in London and another in Birkenhead. The former enterprise was very successful, and was about to become very remunerative when it was stopped by the courts, and the rails were removed as a nuisance. The undertaking at Birkenhead has never been interfered with, but for some reason has not been very profitable. Of late, however, public attention has very generally been called to the subject by reports of the universal use of such railways in the United States, and a disposition been shown to commence the building of them in various quarters. Mr. Train has accordingly gone to England to protect his interests under his patent, and to see that no new street railroads are constructed without the due recognition of his rights. His arrest has grown out of the jealousy and intrigues of those who were about to violate his patent, and who naturally preferred not to pay him anything for its use. These persons have set on foot the story that he was a Fenian, and have had influence enough with the Government to secure his arrest.

SINGULAR SPRINGS.—The Santa Cruz *Times* says: On the ranch of Mr. A. Manchester, about nine miles from Santa Cruz, at the foot of a high hill, there are three springs, each with a peculiarity of its own. They are situated quite near together (but a few yards separating them), and would be quite an interesting study for the geologist. The first is a sulphur spring, highly impregnated, the water being covered with a sort of scum, as pure and white as snow; and in the summer, when the water is low, a still stronger sulphur taste is apparent. The debris or settlements at the bottom of this spring has a beautiful appearance, all the colors of the rainbow being presented. The waters of the second spring are clear and beautiful, but the sediment at the bottom is as black as coal. This water has a most peculiar and far different taste and smell from the former, neither being used as drinking water. The third is a clear running spring, the sediment at the bottom being of a yellowish-red color, completely covering the ground over which the water flows and having much the appearance of terra sienna. The water of this spring is excellent for drinking. Truly, these are a strange cluster.

DIGGING MACHINE.—A powerful digging machine is now in operation in New Jersey, which is said to be achieving wonders. It is run by steam, and is located in the marl beds of Monmouth county. It is at work excavating a canal fifteen or twenty feet deep and seventy-five or a hundred feet wide, taking up a ton of marl a minute and depositing it in cars running on rails laid beside the canal, to be conveyed miles away to the doors of the farmers in that part of New Jersey.

[Written for the Mining and Scientific Press.]

Beach Mining on the Northern Coast.

EDITORS PRESS:—I have been examining with some degree of care the auriferous sands of the coast of Northern California. The great submarine placer, extending from Point Reyes to Puget Sound, is one of the many wonders of the Pacific coast. The axis of this gold belt lies beneath the deep ocean, and only its eastern margin, viz., the sea beach, is visible to us. At some future geological period, the entire placer may be upheaved, and offer its treasures to the generation of some millions of ages hence. It is more likely, however, that impatient miners may not wait the slow action of cosmical forces, but will send down among the whales some Yankee craft to sweep old Neptune's floor for him, and bring away the dust; not caring, when the gold is deposited in the California Bank, whether the sand banks are "bulled" or "beared."

GOLD BLUFFS.

Everybody has heard of Gold Bluff, and the insane excitement growing out of it in '51; how the rushing, pell-mell multitude built up a city at Port Trinidad—the nearest landing—and how reaction followed on the very heels of the crazy furore, and how the deep, muttering denunciations of the unsuccessful slowly and sadly died away, and Gold Bluff was forgotten. The city of Trinidad, with its 3,000 population, built up in three months, was left with only three white male inhabitants. The brick stores, comfortable hotels, and gay saloons were tenantless. The fleet of twelve steamers and twice as many sail vessels, were replaced by a few digger canoes. The ruins of the ancient city are still to be seen lying loose around—dust returning unto dust. A new town is however now growing up, and commerce is again visiting the pleasant bay of Port Trinidad.

Among the returning crowd of gold hunters, a few faces were missed. A few hardy sons of the shovel, either would not or could not get back, and so they pitched their tents at Upper and Lower Gold Bluffs, washing sand one day in a week, and fighting Indians the other six. Here they stuck, and are still sticking, and have grown rich, and well they deserve it. Gold Bluff was no humbug after all, and its sands will probably never be exhausted of their richness.

The first large body of sand I examined, extends from the mouth of El river to the entrance of Humboldt Bay, a distance of some twelve miles. Every shovelful of the millions of tons shows the yellow scales. North of the entrance, I made no examination short of the mouth of Mad river. From this point to the mouth of Little river, ten miles, the beach is auriferous, and is bordered with sand ridges and intermediate depressions for a breadth of the fourth of a mile. Recently, these sand ridges and the adjacent beach have been all located, the entire distance from Mad river to Little river. A good deal of excitement prevails in the vicinity, in consequence of rich deposits being discovered a few feet beneath the surface, and are supposed to underlie the whole district. Several streams of water coming in from the hills have been eagerly snatched up. Water is king, and whoever secures it holds the key to the treasure. The water-rights are mostly secured by substantial business men of Arcata, among them Captain Fauntheroy, well known on our northern coast, who are preparing to organize a company for extensive work. North of the mouth of Little river there is an extensive beach, with large deposits of good sand. This, with the adjacent streams of water, has been recently located by parties who are preparing for work.

TRINIDAD BAY.

North of Little river, is the above bay. It was visited and named by Bodega in 1775, and twenty-five years thereafter by Vancouver. The pile of stones raised as a monument on Trinidad Head by the first explorer, is still to be seen; but the wooden cross, with inscription surmounting the mound, is no longer visible. The harbor is completely sheltered from the prevailing northwest winds. Steamers from San Francisco visit here every two weeks, and a few lumberers are employed in taking away lumber cut from the interminable forests of redwood and spruce. This point, as before

named, was the early embarcadero of the Gold Bluffers, and the auriferous beaches in front and north of the harbor, were the scenes of some of the early and crude efforts at beach mining. The business of washing is still conducted here, and preparations are on foot for extending and rendering the work permanent. The locality is said not to be so rich, but facilities for lumber, water and approach, are superior to any other point on the coast. Twenty-four miles farther north are Upper and Lower Gold Bluffs, and a few miles farther, Oshigan Bluffs—all actively worked. At Crescent City are also extensive workings, as well as at Whale's Head, Pistol River, Gold Beach, and so on up along the coast of Oregon.

WHERE THE GOLD COMES FROM.

The gold seems to come from the disintegration of the shore. The coast is a slate formation overlaid by deposits of washed gravel. The sea has encroached extensively on the land and exposed fine sections at several points, where the relative position of the materials can be seen. The upper deposit varies in thickness from a few inches to two hundred feet. At Gold Bluff the bottom of this deposit is not seen, the entire perpendicular shore consisting of clay, sand, gravel and boulders. Huge trees embedded in blue clay are exposed in the space betwixt tides. They are seemingly of the existing species, some of them are sound wood, others are changed to lignite. This overlying gravel extends back a distance of ten or twelve miles, to the base of the "Bald Hills," as the coast range is here named, filling up deep and extensive valleys in the original surface. No fossils, save the trees above named, occur to aid in estimating the geological period at which this great filling-up process took place. These deep deposits form bluffs as the waves wear into them.

The richest localities on the coast are in front of these gravel bluffs, upon which the sea is gradually encroaching. With every storm they are more or less undermined and huge masses of clay, sand and gravel drop from the perpendicular face and are carried into the submerged placers to be washed and tumbled about, and the gold sent back with the ground swells to glitter on the sunny beach, and likely to be withdrawn into the Neptunic treasury by the next tide. The miner in the meantime is not idle, but follows the tides back and forth, gathering up and wheeling off to places of safety the precious sands to be washed at any convenient interval.

HOW THEY OBTAIN IT.

After years of experience with the usual heart-sickening disappointments and hopes deferred, a pretty effectual method is now used for catching the gold. Washing over extensive amalgamated copper plates interspersed with quicksilver rifles and the use of sodium-amalgam has at last given new life to beach mining enterprises. Much remains yet for ingenuity and skill to perfect, and doubtless that kind of mining will be soon extensively developed.

ITS ADVANTAGES AND DRAWBACKS.

The favorable side is the small amount of capital required and the inexhaustible supply of material. The same spot may be washed and renewed month after month for years, and yet no apparent diminution of value occurs. The unfavorable side is the difficult access to most of the beaches. The small number of harbors along our northern coast, leaving wide spaces to be reached only by land, over a rough and broken country by roads not likely to be soon improved. Humboldt, Trinidad and Crescent City, and points near to them, present many features favorable to permanent and very pleasant as well as profitable mining. Platinum and iridium are mingled with the sand. I believe, however, but little value is attached to them, and no attention is paid to saving them, although considerable quantities might be obtained. The gold is of high standard,—from \$18 to \$19 per ounce. At some points an ancient beach is found to extend back some two or three miles from the present shore. It is now covered with huge redwood trees, sending their roots into deposits of black sand as rich in gold as that on the present water line. Truly yours, V.
San Francisco, Feb. 10, 1868.

ANOTHER SCIENTIFIC MAN GONE.—Prof. William Mitchell Gillespie, who occupied the Chair of Civil Engineering in Union College, died on New Year's day, aged 51. He published treatises upon Surveying and Road-making, which are looked upon as standard works. He also translated from the French, Comte's "Philosophy of Mathematics." He has held his Professorship for more than thirty years.

Mechanical.

MANUFACTURE OF STEEL AND MALLEABLE

IRON BY THE USE OF NITRATES.—Mr. J. Hargreaves recently read a paper before the Liverpool Polytechnic Society upon this subject. He said that although inventors knew the value of the nitrates and chlorates, they have not been able to regulate their action, in consequence of their tendency to rise too rapidly to the surface of the melted iron. To get over this difficulty he makes the converting materials into blocks or balls, and fixes them on the ends of iron rods. These balls being made hard by drying, are ready for use. When the iron is fused in the puddling-furnace, and the boil has commenced, one of these balls is pushed to the bottom of the metal in the furnace—the products of its decomposition rise through the metal, causing rapid agitation, which is much more effectual than that produced by the puddler with his tools. After the ebullition has ceased, the rod is withdrawn and another put in its place. The time occupied in puddling is thus very much shortened, the labor very much reduced, fuel saved, and a better yield of metal obtained, in consequence of the soda forming a base which readily combines with the silicic and phosphoric acids eliminated from the iron. The malleable iron produced from cast iron which has been treated with nitrates is of a very superior quality, having great range of temper. The same metal, which by gradual cooling is fit for purposes requiring great toughness and powers of endurance of bending and torsion, may by rapid cooling be made sufficiently hard for wood-cutting tools; and its freedom from impurities is shown by the remarkably thin scale formed when the iron is worked by the smith, and the consequently small amount of loss in working. Refined iron, for the manufacture of malleable iron in the puddling furnace, may be made by the use of about three per cent. of nitrate of soda, and six per cent. of peroxide of iron; steel by eight to ten per cent. of nitrate, and an equal weight of binoxide of manganese; malleable iron by eight per cent. of nitrate, and twenty per cent. of peroxide of iron; in each case iron with five per cent. of carbon being used.

IMPROVEMENT IN DRILLING APPARATUS.—

A machinist of Leeds, Eng., has patented an arrangement, the object of which is to avoid the accumulation of the borings, in drilling metals, and secure the constant lubrication of the drill. The work to be drilled is mounted vertically above a tank containing lubricating material, and bored upwards from the lower end by fixed drills mounted in the tank. The tank is charged with water or other lubricant, keeping the level of the same above the cutting edge of the drills, and the work will, therefore, be lowered down into the lubricant as the operation proceeds. When boring gun-barrels or other light work, three or more slides or carriers for receiving the work may be conveniently arranged around the central standard. The carriers, being capable of sliding in the vertical guides, will descend as the boring proceeds, or a self-acting motion may be applied to regulate the descent of the carriers when the machine is adapted for heavy work.

HARDENING FILES.—

Some forms of files are apt to become curved in the act of hardening; hence to produce a straight file it is purposely bowed, while soft, in the reverse direction. This is the case with the half-round file. Most of the other forms are gradually heated to a dull red, and then straightened by striking them with a leaden hammer upon an anvil of the same material. In "quenching" the file, or plunging them into cold water, it is difficult to prevent some degree of set or curvature. Each file is therefore watched, and after being plunged once into the water, if there is any bending, it can be remedied before it is cold, by placing it between two iron bars, and applying pressure in an opposite direction,—lading water upon it with the hand.

DOUBLE-FLANGE CAR WHEELS.—

It is proposed to prevent accidents like the recent one at Angola, by having a flange on each side of the wheel, instead of, as now, only on the inside. In this case, one sound wheel on each axle is enough to insure the safety of the train.

REACTION AND RECIPROCATING ENGINES.

A writer in the *American Artisan* for Jan. 15th,—in answer to the correspondent of that journal a portion of whose communication we quoted in our last issue,—upon the velocity of steam pistons working with greatest economy, says: Steam at the pressure of the atmosphere, has no useful power. At two atmospheres it has a useful force equal to overcoming its inertia with a velocity of 600 feet per second. At twenty atmospheres it has a force and velocity of 1,600 feet a second. The resistance of the atmosphere relative to the force of steam is, in round numbers, in the first case, as 1 to 1; in the second, as 1 to 2; and, in the third, as 1 to 20. The last is so inconsiderable that, could the exit orifices of an Avery or reaction engine, using steam at 20 atmospheres, be driven with a velocity of 1,600 feet a second, or a reaction wheel on the principle of the turbine, with a little more than half this velocity, they would be economical motors; and notwithstanding the general, though mistaken, notion that the reaction engine necessarily loses one-half the force of the steam, it is, nevertheless, a fact that a fifteen-horse Avery engine, using steam at ten atmospheres, was run more than twenty years in Attorney street, in the city of New York, with more economy in fuel than has since been shown by the best reciprocating engine which the Novelty Works could build for the same proprietors.

Steam, following a reciprocating piston, takes from its initial pressure a force just equal to its own momentum, which is again returned, and acts on the piston during the last half stroke. Hence, whatever may be the velocity of piston, less that due to the steam at its initial pressure—other things being equal—there can be no loss of power from such velocity.

THE HUGON GAS ENGINE.—In this engine, as now perfected, the gas, as soon as turned on, enters the cylinder, mixed in its passage with about nine times its bulk of common air. The gas having been turned on, all that is necessary to start the engine is to light two ordinary jets of gas, which in their turn light two others. These last inflame the explosive mixture of gas and air conveyed to the cylinder, and being extinguished by the explosion, are relit by the two jets fixed outside the cylinder. At the moment of explosion, a very fine spray of water falls on the piston, and (the heat being then 1,200 degrees) becomes steam, thus reducing the heat and equalizing the pressure throughout the stroke. It is impossible to enumerate the advantages this engine offers. It is as easily set to work as a jet of gas is lit, and is as instantly stopped. Its simplicity, economy, cleanliness, and, above all, its safety, entitle it to rank foremost in its class. Its steadiness in working is remarkable; with one hand on the piston-rod, we could detect no shock from explosion, nor any unsteadiness whatever. This engine needs nothing but the turning on of the gas to set it in full work, and requires no overlooking. No fuel needs be kept, and no smoke issues from it. It attracted considerable attention at the Paris Exhibition, where several were at work.

The above is condensed from the *Mechanics Magazine*. We made some mention of this engine in our issue of August 24th, 1867.

LOCOMOTIVES FOR STEEP GRADIENTS.—

Various plans have been devised to enable an engine to mount steep grades. Mr. Fell, on the Mount Cenis railway, has a central rail which is gripped by four horizontal wheels; another has a central rail which is cogged, and gears into a central driving wheel; another climbing engine, invented by a Mr. Page, has broad driving wheels which bite into a tramway of roughened stone laid alongside the rail.

MALLEABLE CASTINGS.—It is noted as a fact in casting steel to patterns, that a Sheffield (Eng.) firm have cast a hydraulic cylinder eight inches in diameter and two and a half thick, perfectly sound and malleable. The William Butcher Steel Works, Philadelphia, Pa., have recently cast a hydraulic cylinder twelve inches in diameter and but one and three-fourth inches thick, perfectly sound and malleable, which is a much more difficult casting to make, on account of the thinness of the metal.

Scientific Miscellany.

"ROTTEN" CAST IRON.—This expression is used to describe cast iron in a peculiar state, which is due to exposure to sea water, or to the atmosphere under certain conditions. The change which it undergoes is unlike ordinary oxidation, or rusting, which shows itself upon the surface and in the reduced size of the article,—and which lessens the strength only in proportion to that reduction. It is a diminution of cohesion, without any apparent diminution of material, and is not accompanied by any external change in appearance. Mr. Crace Calvert, F.R.S., of Manchester, Eng., placed cast iron cubes in bottles containing very dilute acids. After three months, although there was no change apparent to the eye, a knife-blade would penetrate the cubes to a depth of about one-tenth of an inch. The acid was then replaced by a fresh supply, and this repeated monthly for two years. The result was an entire change in the nature of the metal. Instead of iron, it seemed to be a soft carbon compound of comparatively light weight, of the same size and shape of the original iron cubes. Acetic acid acted most energetically; next, hydrochloric, and next sulphuric acids. These acids are found in sea water under various circumstances; and as there are many structures which are liable to be thus weakened, *Engineering* says the condition of the work so situated should never be lost sight of, but periodically inspected in reference to this point.

THE METEORS OF NOVEMBER LAST.—At the National Observatory, Prof. Newcomb, of the navy, obtained the parallaxes of several of the November meteors or "meteoroids," by means of telegraphic connections between various places; and with such data made approximate calculations of their heights, distances and velocities. The brighter ones were found to be at an average height of seventy-five miles, and were extinguished at an average height of fifty-five miles; the mean length of their path hardly exceeding twenty-two miles.

Prof. N. considered that in the thickest part of the shower, there was an average of one in every 900,000 cubic miles of space. And supposing the shower to be three hours in duration, the thickness of the stream from north to south would be 60,000 miles. The meteoroids are distributed along it probably at the rate of 40,000 to the linear mile, a million passing every second.

The data for establishing their magnitude are imperfect. Several were so brilliant that their reflection could be seen from the face of the chronometer, even in the bright moonlight. From this it would, at first sight, appear that these bodies must be very large. But quite another element must be considered. It appears from experiments cited in the *Philosophical Transactions*, that a body moving through the air with the velocity of the meteoroid, say 280,000 feet per second, "will be exposed to a temperature of more than 3,000,000 degrees of Fahrenheit, a temperature of which we see the effect in the intense brilliancy and almost instant vaporization of the body exposed to it."

In connection with this fact, and from other considerations assigned, Prof. Newcomb believes that "Comet 1, of 1863," commonly called Temple's Comet, or Tuttle's, as it was also discovered by Paymaster Tuttle, of the navy, which the entire November stream of meteoroids is known to follow in its orbit, is itself simply an agglomeration of meteoroids, just dense enough to be visible in the solar rays; and he thinks the same to be true of other telescopic comets.

EFFECT OF PRESSURE ON FREEZING.—M. Mousson has found that a powerful pressure not only retards the freezing of water, but prevents its complete solidification. In this case the pressure opposes the tendency of the water to expand on freezing, and thus virtually lowers the point of solidification.

NEW ANÆSTHETIC.—Dr. Richardson discovered, in August last, the anæsthetic properties of the bichloride of methylene. This differs from chloroform in containing one atom less of chlorine and one atom more of hydrogen; being represented by CH_2Cl_2 , while chloroform is CHCl_3 . Dr. R. says: "In its action the bichloride of methylene is more gentle, but as effective as chloroform; it produces less struggling and less vascular excitement. Its narcotic effects are equally prolonged. It acts very uniformly on the nervous centers. It sometimes produces vomiting. When it is carried so far as to kill, it destroys by equally paralyzing the heart and the respiration. It interferes less than other anæsthetics with the muscular irritability." Dr. R. expects that it will prove less fatal than chloroform, which causes death, he estimates, once in fifteen hundred cases.

The same gentleman has investigated the action of the hydride of methyl, which is identical with fire-damp and marsh gas. He found that pigeons could live for half an hour in an atmosphere containing 35 per cent. of the gas. Death finally came like a sleep—so gently that it was difficult to fix the moment of it. He came to the conclusion that the victims of a mine explosion die an easy but prolonged death. Exertions for the rescue of such persons should therefore not be abandoned, even for days after the accident.

A FASHIONABLE SCIENTIFIC TOY.—

A French jeweler has contrived a galvanoelectric novelty, which is delighting the dandies of Paris. He makes scarf-pins, etc., with heads which move their eyes at the will of the wearer. The motor consists of a single pair of plates, either zinc and platinum or zinc and carbon, and can be carried in the waistcoat pocket. The carbon is fixed in a vessel containing a saturated solution of sulphate of mercury, which serves as the exciting liquid. This vessel is placed within an outer case, to the lid of which the zinc is fixed. The liquid fills only one-half of the vessel. As long as the apparatus is kept upright, there is no action; but when it is placed horizontally, the current is formed. The whole apparatus occupies but a small space; and costs, with the pin, from \$12 upwards.

REASON OF THE INTENSITY OF THE ELECTRIC LIGHT.—

The production of light by chemical action depends upon two conditions:—First, there must be solid particles in a fit condition to take up the motion; and, secondly, chemical action to impart the motion to them. The light produced by combined hydrogen and oxygen, is of itself feeble; but when it plays upon a piece of lime, that lime is sublimed by the heat, and the particles moving in the flame give an intense light; much more so, for instance, than the more slowly-moving particles of carbon in the flame of an oil lamp. It is to the more rapid motion of the particles in the electric light, that its greater intensity is due. The current passes through carbon pencils, particles from which are set in motion with inconceivable rapidity.

COMPOSITION OF GLASS FOR CHEMICAL APPARATUS.—

Professor J. S. Stas has found that ordinary glass is more or less soluble in nitric and muriatic acids; and that it gives up to them traces of the metals which it contains, even at ordinary temperature. It is, therefore, impossible to evaporate pure acid to dryness in it without a saline residue. Bohemian glass of the refractory sort, and other kinds which contain no alumina, but an excess of silica, will resist the action of hot concentrated acids; but the working of such glass is difficult. Prof. S. consequently instituted a series of experiments upon the subject, which resulted in the conclusion that a glass having for its base sodium and calcium, instead of potassium and calcium, is, if there is a sufficient excess of silica, almost as refractory as the Bohemian glass.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand, New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

73,340.—IMPROVEMENT IN WAGON AXLES.—Daniel Jones, San Francisco, Cal.:

I claim the countersunk collar, C, either in combination with the strap, D, or, when used alone, constructed and arranged substantially as and for the purpose described.

This invention is designed to provide an improved wagon axle, and to accomplish the same the inventor employs a countersunk collar, either with or without an arm extending along the axle, the effect of which is to strengthen the shoulder, where the square portion joins the part on which the wheel turns; he also employs a peculiar construction of the shoulder, by which said shoulder is materially strengthened, and rendered much less liable to break. Experiments with an axle made in this manner are said to prove that this axle will bear from one-quarter to one-half more weight than when constructed in the ordinary manner. In turning ordinary axles, the shoulder is turned up perfectly square, thus leaving a sharp angle at the point where the greatest strain is brought to bear. In this improved axle, the shoulder, by a peculiar device, is formed on a curve, whereby it is materially strengthened.

73,369.—IMPROVED EYE MEDICINE.—David R. Morgan, San Francisco, Cal.:

What I claim is the within described composition for treating the eyes, made of the ingredients enumerated and mixed or compounded in about the proportions specified.

This invention relates to a class of compounds for the radical cure of diseases of the eye, incident to the Pacific coast, and known as granules, which consist of pustules or excrescences of about the size of a grain of wheat, which attach themselves to the inner membrane of the eyelid, and produce great irritation to the eye, and which, sometimes, in cases of long standing, result in total blindness. To remove these granules, and effect a radical cure of these cases, as well as to provide a lotion and emollient for other classes of sore or diseased eyes, is the object of this invention. The lotion is prepared and sold by the inventor, and its utility has been fully proven by long practice of its use in this city.

73,391.—IMPROVEMENT IN CHAIN-INCLINOMETERS.—Hermann Schussler, San Francisco, Cal.:

I claim a chain-inclinometer, having the level, I, and the scale, A, A, together with the handle, I, I, I, for ascertaining the correct horizontal distance when measuring the whole, constructed and operated substantially as and for the purpose described.

This invention provides a chain-inclinometer, to indicate the amount of correction to be made on each chain's length, which can be employed for all engineering purposes by being attached to a surveyor's chain, and consists of three parts, to wit, the level, moving about a central point, which point forms the center of all the arcs of the scale, and, as the two sides of the glass are ground parallel, it can be used, if reversed, in chaining down a hill. The inclinometer can be detached from the chain, when it may be used in setting the slope of railroad embankments, dams, ditches, etc. Thus, by the use of this improved instrument, the difficulties of chaining on steep slopes will be, in a great measure, avoided. The whole length of the chain will be available, as there will be no necessity of leveling the chain, the inclinometer correcting all the measurements with absolute correctness.

73,397.—IMPROVEMENT IN STORE-TRUCKS.—Andrew V. Smith, San Francisco, Cal.:

I claim 1. The roller, B, brake-bar, E, brakes, C, C, holders, D, D, metal arm, H, and springs, c, c, when applied to store-trucks, substantially as and for the purpose described.

2. The cross-bar, I, handles, a, a, straps, b, b, ring, h', when arranged and operated substantially as described and for the purposes specified.

By this invention, a store-truck is so constructed that the wheels may be arrested at the will of the truckman, while ascending or descending inclines. In order to accomplish this, the inventor attaches a roller

transversely across the truck frame, back of the wheels. To each end of this roller is attached a brake. A brake-bar, with a spiral spring beneath it, is connected to the roller, passing up between the handles of the frame, on the end of which is placed a plate which works against the truckman, when he braces himself in going down inclines, and arrests the truck. A metal bar is attached to the side of the brake-bar, having a notch upon it, which catches on a pin to keep the brakes in place against the wheels. Below the handles is placed a movable cross-bar, operated by the bands of the truckman, by means of arms and leather straps, which lowers the brake-bar when loading the truck or passing up inclines. The wheels can be set, in loading the truck, so that it will not roll back.

72,819.—WASHING MACHINE.—Ellis W. Grove, Forest Grove, Oregon:

I claim the open dasber, consisting of the cross-bar, D, side pieces, a, and slats, b, in combination with arms, C, shaft, B, frames, F, cross-bars, d, uprights, b, box, A, and blocks, E, all arranged and operated as described.

72,931.—FURNACE FOR ROASTING AND TREATING ORE.—Charles Stetefeldt, Austin, Nev.:

I claim a furnace, constructed with a shaft, B, the fall of the ore through which is retarded by the upward motion of the heated air and chloridizing gases, combined with a fireplace, J, opening into the canal, H, and below the flue, D, substantially as described and for the purpose set forth.

72,982.—CARTRIDGES FOR SMALL ARMS.—Thomas Cullen, San Francisco, Cal.:

I claim the method and arrangement of securing the metallic base or cap a to the paper tube d, which holds the charge, by means of the nipple c screwing into the interior washer h, as substantially herein set forth and described.

73,020.—SEEDER AND CULTIVATOR.—Henry S. Matteson, Stockton, Cal.:

I claim 1. The beams, C, B, in combination with beams D, and cross-beams I, with draw-bar L.

2. The chest A, wooden shaft h, and iron slide i, in combination with crooked pin k, handle O, crank b, connecting-rod c, when used and arranged for the purposes herein specified.

73,160.—SLUICE BLANKET.—Abraham Block, San Francisco, Cal.:

I claim a sluice-blanket provided with woven ribs, substantially as herein described.

73,183.—CAR-AXLE BOX.—George H. Henfield, San Francisco, Cal.:

I claim the combination of the grooved caps e, e, the linings a, a, provided with pins c, c, and the shell A, A, arranged as and for the purpose herein described.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

PRINTERS' CO-OPERATIVE ASSOCIATION.—Feb. 19th. Capital stock, \$10,000; 20 shares, \$500 each. Trustees: J. F. Brown, John Cuddy, Geo. Crowell, M. McCarthy and W. B. Allen.

CENTRAL PACIFIC HOMESTEAD ASSOCIATION.—Feb. 19th. Capital stock, \$42,000; 120 shares, \$350 each. Trustees: Charles G. Noyes, Gilbert W. Haskell and J. B. Houghton.

SAN FRANCISCO MUTUAL HOMESTEAD ASSOCIATION.—Feb. 19th. Capital stock, \$24,000; 50 shares, \$480 each. Trustees: T. Welsh, M. A. Slaven, Robert Coulson, M. J. Donovan and Peter Lynch.

THE NORTH BLOOMFIELD GRAVEL M. Co. have filed a certificate increasing their capital stock from \$400,000 to \$800,000, also for the purpose of decreasing the par value of the shares from \$5,000 to \$100.

THE AMERICAN SPRING BED.—This bed is designed by a simple mechanical arrangement to take the place of the cumbersome and costly spring mattress in general use. It was patented August 7th, 1866, and has now been in use for a sufficient length of time to show its great excellence, if not decided superiority, over the ordinary spring bed. It furnishes a bed quite as flexible as hair, and so yielding and recuperative as to bring itself into place from indurture with great facility. It is said to be peculiarly adapted to the aged and to invalids. It may be seen at the company's depot, in the Mechanics' Institute building, 29 Post street. See advertisement in another column.

ANOTHER TREASURE DELUSION.—A Hazardville, Conn., correspondent of the Hartford Times says that a man by the name of Putnam, who states that he is acting under the direction of the spirit of Benj. Franklin, and has recently come from California, has set three gangs of men to work in that region at \$3 per day, to dig a subterranean passage to find a cave in which he declares some Spanish pirates deposited five million dollars' worth of diamonds and gold bars three hundred years ago,—having burned their ship at the mouth of the Connecticut river, and ascended the river in boats. There is a great excitement in the region, and multitudes of people from far and near visit the spot daily. The treasure is to be divided into fifths; one fifth for the owner of the land,—one for the Governor of the State, to be used for educational purposes; one for the Catholic Society, Boston; one for the Spiritualists; and one for Mr. Putnam. That is, of course, when they get it.

PETRIFIED FOREST.—Near the "tombs of the Caliphs," in the vicinity of Cairo, Egypt, is a perfectly barren and desolate region, where are found numberless fragments of petrified wood. The oak, beech, chestnut and others, none of which are now found growing in the country, are distinctly recognizable among these fragments; but scarcely a trace of the palm, sycamore, or fig tree,—which are the species at present indigenous to that region,—is found. The largest of these specimens is ten feet long, and one foot in diameter. The original color of the wood is well preserved. The perforations produced by the passage of insects through the bark are clearly visible, and a gummy secretion has been found in some of the holes made by them.

LECTURE ON WINE AND SILK.—W. Wadsworth, Esq., will lecture upon the wine and silk interests of California on Wednesday evening next, Feb. 26th, at the rooms of the Chamber of Commerce. He has been invited by the Chamber to repeat the lecture recently delivered before the State Agricultural Society, and also before the Legislature,—and which was highly appreciated by attentive audiences. The subject is a most interesting one, especially to those who have given a thought to the capabilities of the State in this direction. All are invited to be present. Lecture to commence at 8 o'clock.

PRODUCE AND COMMISSION.—The attention of our readers is called to the card of Messrs. Dalton & Blunt, well known produce and commission merchants of this city. They have recently removed from Washington to No. 406 Davis street. All produce consigned to their care will be promptly and efficiently attended to.

REMEMBER Dr. Benton's lecture Wednesday evening, at 7½ o'clock, at Dashaway Hall, Post street. You will hear some plain common sense upon the "healing art," and witness some wonderful feats in the way of psychology, or animal magnetism. Tickets only one dime.

CONSTRUCTION OF MINE SHAFTS.—Mr. H. T. Richardson, of Aber Hirnant, Bala, North Wales, proposes a "tubular shaft-casing and life-stair for mines, etc.," which consists of two galvanized iron tubes, placed concentrically in a shaft, with a flight of stairs between them; the inner tube is to be used as the "trading" shaft. The inventor remarks that entrances could be left to meet the requirements of galleries, great ventilation could be given to the mine, and a free way of escape would always be open to the miners in case of accident. The diameter of the tubes, would be regulated by the size of the shaft. The tubes are to be built in lengths of twenty-five feet; the extra strength of the lower sections would be regulated by the depth of the mine. The casing would strengthen the sides of the pit shaft and prevent any falls or giving way of the sides.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. Lutz, Secretary. Office, 306 Montgomery street, corner of Pine, San Francisco. 2v15

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trade supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 2v15-3m

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block, San Francisco. 5v16-am

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DANA'S Manual of Mineralogy. Revised edition. 260 illustrations. 12mo. cloth. New Haven, 1863. School Edition. 2 25

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Weekly Stock Circular.

Associated Brokers of the S. F. Stock and Exchange Board

SAN FRANCISCO, SATURDAY MORNING,
February 24, 1868.

City Stocks.

City shares continue inactive, the attention of dealers being absorbed by the continued advancement of mining stocks. During the week under review Spring Valley Water Co. stock sold at \$60; at the close we quote it at \$58 bid and \$60 asked. A meeting of the stockholders of this company will be held on the 17th of March next, for the purpose of increasing the capital stock to \$8,000,000, to be divided into 80,000 shares of \$100 each. San Francisco Gas is steady at \$66. A few shares of North Beach & Mission Railroad sold at \$60, and Oakland Railroad at \$70. At the close San Francisco Gas stock sold at \$66 50 seller 3, and 200 shares of Nicholson Pavement stock at \$35.

At a meeting of the Directors of the Odd Fellows' Savings Bank, held on Monday evening, the 17th instant, Henry B. Brooks was chosen President; David Meeker, Vice President; Jas. Benson, Secretary, and Charles N. Fox, Attorney.

Mining Share Market.

During the past week the mining share market has obtained a still greater activity and prices have been vastly augmented. The developments in the Imperial mine, together with the prospects of the companies whose explorations will be made through the agency of the Imperial-Empero shaft; the very satisfactory developments in the Hale & Norcross, and the late discoveries in the Savage mine, have mainly contributed to the continuance of the general rise; however, the merits upon which advances are based, in quite a number of claims, are certainly not very tangible. Many have realized very handsomely on their investments, and this, together with the easy condition of the money market, has brought in those who usually refrain from dealing in mining stocks.

The shipments of bullion, during the week ending February 15th, from Wells, Fargo & Co.'s office at Virginia, Nevada, amounted to \$114,478, and from the Gold Hill office to \$35,125.

SAVAGE—was exceedingly active, rapidly advancing from \$143 to \$195, and closing at \$198 buyer 30. During the week ending Feb. 15th, 1,714 tons of ore were taken from the mine, showing an approximate value of \$58,511, or \$34 14 per ton. This shows a slight improvement over the previous week. In the south mine, on the fourth level, the ore—both the breast and the drift going south from it—is said to be very good. A telegram of the 20th inst. states that they struck ore in the north drift, on the 5th station, but have not yet ascertained its extent. This is about one hundred and twenty feet north of the main tunnel. The north drift, same level, runs in hard ground. A telegram, dated Feb. 21st, 11 A. M., states that they have developed three feet of fair ore in the north drift, on the fifth station.

HALE & NORCROSS—Owing to this stock being at present held for election purposes, it has been nominally suspended from the list. On the 15th instant one foot sold for \$2,700, seller 40. Mail advices to the 17th instant state that they had opened the sill floor of the 930 level a distance of 115 feet, and have raised five floors, all of which are said to look well. In drifting northward the ore is not so good; however, the openings above the sill floor are said to look much better than the sill floor itself. The ore now being extracted will average from \$36 to \$37 per ton, and the first ore mined will, it is thought, run over \$40.

CROWN POINT—gradually advanced from \$1,600 to \$1,900 seller 10, and closed at \$1,900. It is expected that the retimbering of the shaft will be finished to-day, and that work will be resumed on the 800 level before the first of March. From the fact that about five feet of water has been found on the 700 level, they expect to cut a body of water in drifting on the 800 level. The shipments of ore on the 15th and 16th inst., amounted to 77½ tons, showing a 65 per cent. assay value of \$37 96.

IMPERIAL—was dealt in to a considerable extent, rising to \$280, then selling at \$270@290, and at the close realizing \$270. The new body of ore through which a drift is now being run lies on the south line, 210 feet west of the shaft, and 185 feet below the surface, or 45 feet above the track floor of the 230 level. It is thought that the entire deposit will mill about \$25 to the ton. They have drifted a considerable distance

upon it, but so far no estimate can be given of the amount likely to be found in this locality, since it is seventy feet farther west than any work ever done in the mine. In opening north and south on this ore, it is reported to look well. On the 17th inst., the guides for the cages had been placed a distance of 240 feet from the bottom of the shaft, and one compartment of the shaft was to have been completed by the 19th inst. They expect to commence drifting to-day—by the way, a very auspicious day to begin. The receipts of bullion to date for the current month amount to \$22,650.

KENTUCK—sold at variable rates, opening at \$307 50, declining to \$260, and on Thursday advancing to \$300. The receipts of bullion for January account are stated at \$92,914 26. Empire advanced from \$245 to \$275, and closed at \$270 seller 30.

CHOLLAR-POTOM—has been less active than usual, advancing from \$190 to \$225, and closing yesterday at \$212 50. The slump is now being made preparatory to opening the station for the incline. At present the Blue Wing station yields about fifteen tons of ore per day. On the 16th inst., 88 tons of ore were shipped, and on the 17th, 110½ tons.

GOULD & CURRY—met with more than usual inquiry at an advanced price, rising from \$500 to \$850, dropping to \$650, and closing at \$630. We have no news whatever to warrant the recent advance in this stock. YELLOW JACKET rose from \$995 to \$1,240, and at the close sold at \$1,210. The *Trespass* of the 15th inst., says that "the pump has been lowered to the bottom of the new shaft, which has been drained of 110 feet of water since Thursday morning. Sinking for a new level will be commenced at once, and unless something in the shape of new ore fields be opened, in the expressive language of one who knows, 'somebody will be hurt.'"

OVERMAN—sold quite freely during the week, but toward the close, when the price ran up to \$200, holders were not disposed to sell; however, yesterday it reached \$215, and closed at \$200. C. A. Luekhart, mining engineer, who has made an elaborate report upon this mine, sums up as follows: Ore at 300 level and above, 7,560 tons, valued at \$17@24; between 300 and 400 levels, 6,400 tons, valued at \$24@25 per ton—making a total of 13,960 tons of \$23 or \$24 ore. This report is dated February 14th, and a letter of the 16th, says that the ore on the 361 level (Uncle Sam ground) is improving in quality, showing by assay \$53 per ton. ALPHA sold at \$1,250@1,475. BELCHER at \$270@360. OPHIR rose from \$62 50 to \$190 seller 30, closing yesterday at \$150. Nothing of importance from the mine.

EXCHEQUER—was inquired for at an advance, rising from \$29 to \$38. SIERRA NEVADA sold at \$15@18 50, and closed at \$20. SEGREGATED BELCHER at \$10 50@18, closing at \$19. BULLION at \$45@70, closing at \$60. LADY BRYAN at \$30.

GOLD HILL QUARTZ—is quiet; a few shares selling at \$93 50@100. DANEY realized \$14 per foot. The annual meeting of the stockholders of this company will be held on Monday, the second day of March next, for the purpose of electing a Board of Trustees to serve the ensuing year.

JULIA—located east of the Comstock Lode, levied an assessment of \$2 50 per share, payable since the 18th inst. This stock has not been in the market for a long time past.

AMADOR—sold at \$225. This mine continues to produce handsome returns, and its monthly dividends are as regularly and uniformly disbursed as those of the Bank of California.

The sales in the Board during the past week have been as follows: Regular sessions, \$2,180,298; open sessions, \$682,722—total, \$2,863,020; making an aggregate of \$7,056,186 during the current month.

ERRATUM.—In the item headed "Vital Force," in our last issue, for "American Chemistry" read "Animal Chemistry."

C. MULLER, Optician, 205 Montgomery street, has been appointed sole agent for the improved Eye Sharpener, patented by E. B. Foote, M. D.

POSTMASTERs are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAYS	DELINQUENT, OF SALE.
Aleida, Sierra Co., Feb. 3, \$1.00	March 4—March 30	Amador Co. dividend, \$5 per share, Payable Jan 10
Belcher, Storey Co., Nev., Dec. 27, \$15.	Jan 27—Feb 28	Belcher, Idaho & Abemahine, Storey Co., \$5, Jan 27—Feb 28
Chollar-Potom, Storey Co., Feb. 10, \$30.	March 17—April 6	Chollar-Potom, Storey Co., Feb. 10, \$30.
Empire, Nevada, Jan. 24, \$1.	March 4—March 20	Empire, Nevada, Jan. 24, \$1.
Exchequer, Gold Hill, Nev., Jan. 30, \$3.	March 4—March 25	Exchequer, Gold Hill, Nev., Jan. 30, \$3.
Fogus M. & M., Amador Co., Feb. 19, \$10.	March 28—April 9	Fogus M. & M., Amador Co., Feb. 19, \$10.
Great Central, Arizona, Feb. 19, \$1.	March 23—April 14	Great Central, Arizona, Feb. 19, \$1.
Golden Rule, Tuolumne Co., div. 50¢ sh.	Payable Dec 26	Golden Rule, Tuolumne Co., div. 50¢ sh.
Gold Hill M. & M., dividend, \$5.	Payable Dec 16	Gold Hill M. & M., dividend, \$5.
Humboldt Canal, Humboldt, Feb. 10, \$5.	March 18—April 11	Humboldt Canal, Humboldt, Feb. 10, \$5.
Imperial, Virginia, Nev., Jan. 15, \$2.	March 14—March 29	Imperial, Virginia, Nev., Jan. 15, \$2.
IX L, Alpine Co., Feb. 13, \$1.50.	March 28—April 12	IX L, Alpine Co., Feb. 13, \$1.50.
Julia, Storey Co., Nev., Feb. 13, \$2.50.	March 23—April 11	Julia, Storey Co., Nev., Feb. 13, \$2.50.
Josephine Quicksilver, San Luis Obispo, div. \$2.	July 8	Josephine Quicksilver, San Luis Obispo, div. \$2.
Kearney, Inyo Co., Jan. 20, \$1.	Feb 21—March 16	Kearney, Inyo Co., Jan. 20, \$1.
La Shanea, Sonora, Mex., Jan. 2, \$2.	Feb 1—March 23	La Shanea, Sonora, Mex., Jan. 2, \$2.
Lake, Lake Co., Jan. 15, \$2.	March 4—March 29	Lake, Lake Co., Jan. 15, \$2.
Lady Bell, Del Norte Co., Jan. 23, \$3.	Feb 10—March 12	Lady Bell, Del Norte Co., Jan. 23, \$3.
Nuestra Señora, Mex., Jan. 3, \$1.	Feb 10—March 3	Nuestra Señora, Mex., Jan. 3, \$1.
North Star, Lander Co., Nev., dividend.	Payable Nov 28	North Star, Lander Co., Nev., dividend.
Mt. Morning Star, Alpine Co., Feb. 14, \$1.	March 21—April 11	Mt. Morning Star, Alpine Co., Feb. 14, \$1.
Oxford, Del Norte Co., Nov. 9, \$2.50.	Feb 21—March 12	Oxford, Del Norte Co., Nov. 9, \$2.50.
Ophir, Storey Co., Nev., Jan. 21, \$3.	March 4—March 20	Ophir, Storey Co., Nev., Jan. 21, \$3.
Patrocinio & Dolores, Mex., Jan. 15, \$2.	Feb 14—March 2	Patrocinio & Dolores, Mex., Jan. 15, \$2.
Rogers, Storey Co., Nev., Jan. 20, \$1.	Feb 22—March 12	Rogers, Storey Co., Nev., Jan. 20, \$1.
Rio Piedra, Alpine Co., Feb. 17, \$30.	Feb 22—March 12	Rio Piedra, Alpine Co., Feb. 17, \$30.
Rutland, Nevada, Jan. 23, \$2.	Feb 29—March 12	Rutland, Nevada, Jan. 23, \$2.
Sacramento, Storey Co., Feb. 10, \$5.	March 16—April 4	Sacramento, Storey Co., Feb. 10, \$5.
San Antonio, Silver City, dividend.	Payable Feb 15	San Antonio, Silver City, dividend.
Sierra Nev., Storey Co., Nev., Feb. 6, \$10.	Mar. 11—Mar. 31	Sierra Nev., Storey Co., Nev., Feb. 6, \$10.
Savage, Virginia, Nev., dividend.	Payable Jan 16	Savage, Virginia, Nev., dividend.
Texas Flat, Fresno Co., Cal., Jan. 3, 25¢ per sh.	Feb 15—Mar 3	Texas Flat, Fresno Co., Cal., Jan. 3, 25¢ per sh.
Ventana, Mex., Jan. 8, \$1.50.	Feb 27—March 21	Ventana, Mex., Jan. 8, \$1.50.
Weleh Q., Contra Costa Co., Jan. 23, \$3.	March 17—April 7	Weleh Q., Contra Costa Co., Jan. 23, \$3.
Yellow Jacket, Gold Hill, Nev., Jan. 22, \$25.	Feb 21—March 23	Yellow Jacket, Gold Hill, Nev., Jan. 22, \$25.
Yellow Jacket, Gold Hill, div. 75¢ sh.	Payable July 10	Yellow Jacket, Gold Hill, div. 75¢ sh.

* Those marked with an asterisk (*) are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

MISCELLANEOUS STOCKS.	
Bid.	Asked.
United States 7-10th Bonds, June issue.	\$75½
Legal Tender Notes.	71½
California State Bonds, 1867.	90
California State Bonds, 1868.	102
San Francisco City Bonds, 6s, 1855.	85
San Francisco City and County Bonds, 6s, 1856.	84
San Francisco City and County Bonds, 6s, 1857.	84
San Francisco City and County Bonds, 6s, 1858.	84
San Francisco City and County Bonds, 6s, 1859.	84
San Francisco City and County Bonds, 6s, 1860.	84
San Francisco City and County Bonds, 6s, 1861.	84
San Francisco City and County Bonds, 6s, 1862.	84
San Francisco City and County Bonds, 6s, 1863.	84
San Francisco City and County Bonds, 6s, 1864.	84
San Francisco City and County Bonds, 6s, 1865.	84
San Francisco City and County Bonds, 6s, 1866.	84
San Francisco City and County Bonds, 6s, 1867.	84
San Francisco City and County Bonds, 6s, 1868.	84
San Francisco City and County Bonds, 6s, 1869.	84
San Francisco City and County Bonds, 6s, 1870.	84
San Francisco City and County Bonds, 6s, 1871.	84
San Francisco City and County Bonds, 6s, 1872.	84
San Francisco City and County Bonds, 6s, 1873.	84
San Francisco City and County Bonds, 6s, 1874.	84
San Francisco City and County Bonds, 6s, 1875.	84
San Francisco City and County Bonds, 6s, 1876.	84
San Francisco City and County Bonds, 6s, 1877.	84
San Francisco City and County Bonds, 6s, 1878.	84
San Francisco City and County Bonds, 6s, 1879.	84
San Francisco City and County Bonds, 6s, 1880.	84
San Francisco City and County Bonds, 6s, 1881.	84
San Francisco City and County Bonds, 6s, 1882.	84
San Francisco City and County Bonds, 6s, 1883.	84
San Francisco City and County Bonds, 6s, 1884.	84
San Francisco City and County Bonds, 6s, 1885.	84
San Francisco City and County Bonds, 6s, 1886.	84
San Francisco City and County Bonds, 6s, 1887.	84
San Francisco City and County Bonds, 6s, 1888.	84
San Francisco City and County Bonds, 6s, 1889.	84
San Francisco City and County Bonds, 6s, 1890.	84
San Francisco City and County Bonds, 6s, 1891.	84
San Francisco City and County Bonds, 6s, 1892.	84
San Francisco City and County Bonds, 6s, 1893.	84
San Francisco City and County Bonds, 6s, 1894.	84
San Francisco City and County Bonds, 6s, 1895.	84
San Francisco City and County Bonds, 6s, 1896.	84
San Francisco City and County Bonds, 6s, 1897.	84
San Francisco City and County Bonds, 6s, 1898.	84
San Francisco City and County Bonds, 6s, 1899.	84
San Francisco City and County Bonds, 6s, 1900.	84

GAS COMPANIES.	
San Francisco Gas Co.	66½
Sacramento Gas Co.	67½

RAILROADS.	
Sacramento Valley Railroad.	—
San Francisco and San Jose Railroad.	40 45
Central Railroad.	50 51
North Beach and Mission Railroad.	60 64
Front Street, Mission and Ocean Railroad.	11 12

BANKING INSTITUTIONS.	
Bank of California.	90 100
The Bank of California.	153 165

INSURANCE COMPANIES.	
Fireman's Fund Insurance Co.	85 95
Pacific Insurance Co.	115 119
San Francisco Insurance Co.	100 100
Mercantile Marine Insurance Co.	450 450
California Insurance Co.	1300 1400
Union Insurance Co.	90 92½
California Home Insurance Co.	—
Horne Mutual Insurance Co.	9 10
Occidental Insurance Co.	—
National Insurance Co.	69 71

MINING STOCKS—WASHOE DISTRICT.	
Alpha.	1300 1500
Baltimore American.	—
Belcher.	340 350
Bullion, G. H.	65 61
Crown Point.	1880 1900
Confidence.	210 215
Chollar-Potom.	210 215
Dane.	14 15
Exchequer.	36 37
Empire Hill and Mining Co.	1 50
Gold & Curry.	615 625
Hale & Norcross.	—
Imperial.	265 270
Lady Bryan.	25 30
Ophir.	150 155
Overman.	198 200
Savage.	191 193
Sierra Nevada.	17 19
Yellow Jacket.	1190 1210
Golden Rule, California.	—
Gold Hill Quartz.	12 13
Kentuck.	285 290

San Francisco Market Rates.

Wholesale Prices.	
FRIDAY, Feb. 21, 1868.	
Flour, Extra, 100 lbs.	\$7 50
Do., Superfine.	7 00
Corn Meal, 100 lbs.	3 00
Wheat, 100 lbs.	2 50
Oats, 100 lbs.	1 75
Barley, 100 lbs.	1 50
Beans, 100 lbs.	2 50
Potatoes, 100 lbs.	1 25
Hay, 100 lbs.	15 00
Do., 100 lbs.	15 00
Beef, extra, dressed, 100 lbs.	10 12
Sheep, on foot.	3 00
Hogs, on foot.	10 12
Hogs, dressed, 100 lbs.	10 12

GROCERIES, ETC.	
Sugar, crushed, 100 lbs.	14 00
Do., China.	10 11
Coffee, Costa Rica, 100 lbs.	19 20
Do., Rio.	18 25
Tea, Japan, 100 lbs.	65 85
Do., Green.	60 1 25
Hawaiian Rice, 100 lbs.	8 00
China Rice, 100 lbs.	8 00
Coal Oil, 100 lbs.	45 60
Candles, 100 lbs.	15 20
Ranch Butter, 100 lbs.	50 33
Isthmus Butter, 100 lbs.	17 33
Cheese, California, 100 lbs.	18 20
Eggs, 100 lbs.	50 34
Butter, 100 lbs.	16 16
Ham and Bacon, 100 lbs.	14 16
Shoulders, 100 lbs.	10 12

Retail Prices.	
Butter, California, fresh, 100 lbs.	25 40
Do., pickled.	25 40
Do., Oregon.	15 40
Do., New York.	30 40
Cheese, 100 lbs.	25 40
Honey, 100 lbs.	25 40
Butter, 100 lbs.	25 40
Lard, 100 lbs.	15 40
Ham and Bacon, 100 lbs.	25 40
Cranberries, 100 lbs.	1 00
Potatoes, 100 lbs.	1 00
Potatoes, Sweet, 100 lbs.	3 00
Tomatoes, 100 lbs.	1 00
Onions, 100 lbs.	1 00
Apples, 100 lbs.	1 00
Pears, Table, 100 lbs.	1 00
Plums, dried, 100 lbs.	11 11
Peaches, 100 lbs.	11 11
Oranges, 100 lbs.	11 11
Lemons, 100 lbs.	11 11
Citricus, apices.	10 75
Turkeys, 100 lbs.	16 16
Soap, Pale and C. O.	7 12
Soap, Castile, 100 lbs.	17 18

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, Feb. 21, 1868.	
Iron—Duty: Pig, \$9 per ton; Railroad, 60¢ 100 lbs; Bar, 60¢ 100 lbs; Sheet, polished, 36¢ 100 lbs; common, 15¢ 100 lbs; Plate, 15¢ 100 lbs; Pipe, 15¢ 100 lbs; Galvanized, 25¢ 100 lbs.	
Scotch and English Pig Iron 100 lbs.	\$36 00 @ \$38 00
White Pig 100 lbs.	—
Refined Bar, good assortment, 100 lbs.	—
Refined Bar, good assortment, 100 lbs.	—
Boiler, No. 1 to 4.	—
Plate, No. 5 to 9.	—
Sheet, No. 10 to 13.	—
Sheet, No. 14 to 20.	—
Sheet, No. 21 to 27.	—
Sheathing, Old Yellow.	—
Boils.	—
Composition Nails.	—
Tin Plates—Duty: 25¢ cent. ad valorem.	12 50 @ 13 00
Plates, Chlorine, 100 lbs.	10 00 @ 11 00
Plates, 100 lbs.	10 00 @ 11 00
Roofing Plates.	10 50 @ 11 00
Bunch Tin, Slabs, 100 lbs.	25 00 @ 26 00
French—English Cast Steel, 100 lbs.	10 00 @ 11 00
Quicksilver, 100 lbs.	—
Lead—Pig, 100 lbs.	7 50 @ 8 00
Sheet.	—
Pipe.	—
Bar.	9 00 @ 9 50
Zinc—Sheet, 100 lbs.	—
Borax—California, 100 lbs.	20 00 @ 21 00

San Francisco Prices of Copper Ores.

SAN FRANCISCO, Feb. 21, 1868.

We give the following as an approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent. The late reduction in price is on account of the advance of freight:

	Per ton.		Per ton.
12 per cent. ore.....	\$16 00	22 per cent. ore.....	\$43 56
13 " ".....	18 02	23 " ".....	46 45
14 " ".....	20 20	24 " ".....	49 33
15 " ".....	23 35	25 " ".....	52 22
16 " ".....	26 29	26 " ".....	55 11
17 " ".....	29 12	27 " ".....	58 00
18 " ".....	29 91	28 " ".....	+0 80
19 " ".....	34 90	29 " ".....	63 77
20 " ".....	37 78	30 " ".....	66 66
21 " ".....	40 67	31 " ".....	69 55

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Feb. 8th: Pay ore has been again found in the Tarshish. In a tunnel, running from Monitor creek to open up the continuation of the Tarshish deposit south, ore was struck, early this week, both hard and soft, which is identical with that found in the original strike. Several small pockets of decomposed ore turned out sulphurets, which upon assay by Mr. Lewis Chalmers gave results as follows: From pocket No. 1, the silver sulphurets had evidently partially dissipated from exposure to a free seam, as the assayed showed a value of silver \$134.07; gold \$568.89; total \$1,002.96 per ton. From another pocket farther in and surrounded by firm rock, the assay gave as follows: of silver per ton 1,329.4 ounces, value \$1,714.92, gold 10 ounces, value \$413.40; total value per ton \$2,128.32. An assay of hard ore gave of silver 119.6 ounces, value \$154.41, gold 2.2 ounces, value \$45.46; total value per ton \$199.87.

The Mt. Bullion property has passed into the hands of London capitalists. They intend to push work on the mine as fast as possible.

The lateral tunnel of the Monitor Consolidated Co. now in 30 ft., already shows, among the decomposed substance in which it is running, ore which assays \$20 to \$30 per ton.

Amador County.

Jackson Ledger, Feb. 15th: The east drift in the Union mine is now in 70 ft. The ore is unusually good, and contains a large per cent. of sulphurets.

Dispatch, Feb. 15th: Two mills are now running on rock from the Mahoney mine. The Co. have purchased the old Wildman mill, and are getting it repaired, preparatory to placing it on the mine. The mine is capable of furnishing ore for 80 stamps. Five days' run of the chlorination works gives a clean up of \$1,500.

The proprietors of the Oneida mine had a clean up this week amounting to \$1,000, which was cast into a brick by P. Reichling.

Calaveras County.

Chronicle, Feb. 15th: Since the cessation of the rain, work has been commenced on all the claims in this vicinity. The most favorable reports are received from all sections of this mining district.

Markwood & Co., proprietors of the old "Gopher" claim at Buckeye, are doing exceedingly well.

Mr. Peters, in the same district, is also taking out some rich gravel from his tunnel in Red Hill. Mining interests in that vicinity are in a more prosperous condition at present, than they have been before for years.

Times are lively at Cat Camp and vicinity. The mining region is proving to be much more extensive and richer than was at first supposed. Claims are paying all the way from \$4 to \$20 per day, to the hand. People are flocking in from all directions, and that entire region of country is being taken up for mining purposes.

The "Palomo" mill is kept constantly running. Some very fine rock is being taken from the shafts.

San Andreas Register, Feb. 15th: Mr. Thorn has again begun driving his shaft down, and the quartz is more flattering in its appearance than it has ever been. The lode seems to widen, though it grows more solid. At the northern end of the claim, the vein has been struck, and the quartz is proving satisfactory. The extension on the other end of the Thorne claim will be worked in a few days. Mr. Gottschalk and his company have found what is supposed to be a parallel vein, some 200 yards north-easterly of the Thorne vein, which prospects exceedingly well. The quartz, on the surface, is a white, burnt-appearing, soft rock, but contains a great deal of fine gold.

Inyo County.

Esmeralda Union, Feb. 9th: Charles Duval, who passed through Aurora a few days since, informed us that the mines at Lone Pine, Inyo Co., Cal., were never looking better, and those worked were paying well. He reports about a foot of snow, which was so unlooked for that no preparation whatever was made for the unexpected intruder, consequently, mining operations have been retarded. He also reports that good surface diggings have been struck, 50 miles south of Owens Lake, but the Indians are represented as being so hostile that it would be useless for small parties to attempt to prospect.

Mariposa County.

Gazette, Feb. 15th: Bogan & Co. are getting the timbers on their mill site, at the Pedro Goza mine, for the purpose of erecting a quartz mill. A turbine wheel will be used for the driving power. When the weather opens, the machinery will be moved from Colorado, and operations will be commenced in earnest.

The J. B. Sanders vein, about 1½ miles west of Coulterville, on Red Bone Gulch, and recently purchased by R. Jones and James Piper, will be worked in the spring by the present owners. This vein has been very rich in gold. There are two or three other mines near Coulterville, that are being prospected at present.

Nevada County.

Transcript, Feb. 15th: The rock taken from the Pittsburg still continues as rich as ever. They have now opened on both ends of the lead and find the rock good throughout. Some beautiful specimens from the mine may be seen in the cabinet of the National Exchange Hotel.

Feb. 19th: Union Hill a year ago was a very lively mining camp, with several mills in operation and a large number of men employed. Now all the mines are shut down, and none of the mills are at work except the one owned by Layton & Co. which occasionally runs upon custom rock. Some of the companies talk of resuming soon, and others are patiently waiting for the time when mines can be worked at less expense.

Gazette, Feb. 13th: The Enreka Co. of Grass Valley, has declared a dividend of \$20,000 for the four weeks ending Jan. 30th, payable at San Francisco.

Feb. 19th: Great activity prevails among the miners at Birchville and vicinity. The companies are all at work, and are either making money or have fine prospects ahead. The Granite Co. clean up on an average once in 25 days, and the yield is at the rate of about \$150 a day. The Kennebec Co. use 400 in. of water, and their last clean up, after a run of seven days yielded \$4,500—an average of over \$650 a day. Sloan & Co., owners of the American claims, have recently commenced operations, with the best prospects of large results. Furth & Co., owners of the San Joaquin claims, use 400 in. of water and are doing well. The Irish American and Don José Cos. have leased their claims to a company of Chinese who run 250 in. of water to each claim. They are said to be making money very rapidly. The Buckeye claims, between Birchville and Sweetland, owned by Evans, Stidger & Co., are in the full tide of successful operation. They are taking out a larger amount of gold than any other company on the ridge. Several of the clean ups last year yielded as high as \$24,000—each run of 40 days costing the company about \$10,000. Some of the owners have refused to sell their interests at the rate of \$75,000 for the whole ground.

At French Corral, mining operations are carried on with the greatest energy and activity. That place and Birchville are at present the most active mining centers on the Ridge, and the prospects are favorable for a long season of prosperity. At French Corral, there is a broad, deep stratum of rich cement underlying the hydraulic ground, which will afford employment for hundreds of stamps for many years. Eddy & Co., whose claims cover 75 acres of ground, employ 20 men, and use 1,500 inches of water. In one run of 30 days they cleaned up \$30,000. The claims of Schardin, Bell & Co. adjoin the Eddy's. They have a large bed of cement, which they are now crushing—the mining being done by white men, while Chinese are employed in packing away and piling up the boulders. Adjoining these are the claims of Crittenden & Co. They are slicing off the surface, and at the same time erecting a mill to crush the cement. The machinery for the mill is mostly on the ground. Burke & Co. have eight men steadily employed, and run 400 inches of water. The Glaister claims employ four men, and are yielding well. Ayer & Co. employ three men, have three pipes, use 200 inches of water, and are now working to open their ground. The Slow and Easy Co. (Sullivan & Co.) use 100 inches of water, and are making money. The Dockum Co.—composed of a party of Frenchmen—have four pipes, run 400 inches of water, and in the past two years have cleared \$33,000. Their claims are extensive, and will last many years.

Excelsior.—Virginia *Enterprise*, Feb. 18th: A gentleman from Meadow Lake informs us that the snow in that vicinity is only about 7 ft. deep. About 100 persons are now in that section. The Enterprise Co. are going ahead with both mine and mill. One run on what is called second-class ore paid, by roasting, \$50 per ton.

The Mohawk & Montreal Co. are also at work.

Placer County.

Herald, Feb. 15th: We were presented this week with a handsome piece of quartz, taken from a new claim being prospected by Capt. Mallett, beautifully studded with pure virgin gold. This specimen, with many others, was obtained within 4 ft. of the surface, and indicates that the ledge is indeed rich.

Our surrounding hills are swarming with quartz miners and prospectors, and nearly every one has his "pockets full of rocks," every rock showing free gold to the naked eye.

Willment, Mallett & Co. are preparing to work their claim near Auburn.

Dutch Flat *Enquirer*, Feb. 15th: Kidder & Co., at Squiers' Cañon, have sunk three shafts on their claim, and have met with satisfactory results. We learn that a large number of miners in and about Squiers' Cañon intend to commence work during the coming week.

Wolcott & Wells have commenced hydraulicing in their claim at Squiers' Cañon, and they have prospects of a bounteous harvest of gold.

Rollins & Co. are ready to commence washing in their claim as soon as their pipe, which is now on the ground, is laid.

The King Bros. cement mill at this place continues to yield a respectable profit. Their last clean-up, on Saturday, netted the company \$10 per day to the hand.

Messrs. Bakers, owners of a cement claim in this place, have contracted with Smithwick for the construction of a set of arastras on their ground, for the purpose of prospecting the same, preparatory to putting up a mill.

Auburn Stars and Stripes, Feb. 13th: The old Flag mill, near Doty's Flat, is soon to be removed to Auburn Ravine, below Ophir, where it will be enlarged, and supplied with all the appointments of a first-class mill.

Sacramento County.

Folsom Telegraph, Feb. 15th: A colony of Portuguese miners have taken possession of Maine Flat, opposite this town, and claims once abandoned are made to pay well through their industry.

From all sections of the mining regions in this vicinity we hear favorable accounts. In the neighborhood of the Western House particularly, the miners are doing well, and expect to do much better hereafter.

Shasta County.

Courier, Feb. 15th: The owners of the quartz ledge on McCall Gulch, Dog Creek, are making preparations to commence taking out rock for shipment below in the spring. The rock sent below some time ago paid \$50 to the ton, and much richer rock has been struck since that was taken out.

Last fall the Parks brothers went up on Arbuckle, and set to work prospecting for a winter claim. They finally selected a piece of ground, rigged up a hydraulic pipe, and set to work as soon as they obtained water. We understand that the enterprise has been abundantly rewarded, and that they have already taken out a large amount of gold dust, and have realized as high as \$140 for one day's panning.

Sierra County.

Downville Messenger, Feb. 15th: The Brush Creek mine continues to develop as rich as ever. Machinery is now being constructed to put up a good mill on the mine in the spring.

The Docile is still paying at the rate of 25 pounds per week, from the upper tunnel. Parties were in town last week recording late discoveries near Kanaka Creek.

The Enreka correspondent writes: Most of the ditch owners have, during the past ten days, had a lot of men at work repairing flumes and removing obstructions, to have them ready for the water season.

There are but few men at work mining at present.

The Nevada *Transcript* of Feb. 19th, speaking of the Docile ledge, says: Mr. Smith, who came from the ledge on Friday last, brought with him 20 pounds of specimen rock, which was estimated would pay \$100 to the pound, or nearly one-half gold. A piece of the rock was broken in the presence of our informant, who says he should think it was more than one-half gold, and was taken out within six feet of the surface. A large quantity of this specimen rock has been worked in hand mortars and not less than \$20,000 has been pounded out in this way alone. Mr. Smith has one piece on exhibition at his store which is valued at \$1,000. The ledge is spotted and it is evident these specimens came from a pocket, although the rock which is worked by mill process is paying handsomely.

Yuba County.

Marysville Appeal, Feb. 12th: Great ex-

citement exists among the miners at Smartsville and vicinity concerning the "jumping" of claims, attempted by Ackley, Cray and O'Brien, by their location known as the Smartsville Hydraulic Mining Co. A miners' meeting was held, and it was declared that all claims located back of the front claims should not be considered forfeited by reason of not being worked, unless the claims in front of them should be washed or worked out; also that all claims having work done on them to the value of \$50 shall not be subject to forfeiture at any time hereafter. The meeting also provided for having all the claims in Sucker Flat district surveyed and mapped by a competent surveyor.

ARIZONA.

Miner, Jan. 18th: At latest accounts from the Chase lode in Hassayampa district the ledge was 5½ ft. thick, and the rock as good as ever.

Last week, Mr. Reed worked in a Moore pan four tons of tailings of Sterling rock, out of which he got \$140, or \$35 to the ton. These tailings had been previously worked or manipulated four times. With a horn-spoon, scarcely a color could be got out of them.

A party of placer miners, who have been at work in the Hassayampa for some time past, recently struck pay-dirt, out of which they picked pieces of gold weighing from one bit to a dollar. The dirt in which they found so much gold is a sort of mushy loam.

The Plumoso lode, in the bed of the Hassayampa, is still being worked. The Coloradians who found it are engaged in taking the rock out and working it, and the results obtained by them are flattering. Every ounce of metal taken out is worth \$5, and it takes but a short time for them to get an ounce.

Yong & Roddick, owners of the Chanee lode, were down upon it 60 ft. when the water drove them out. They have commenced to sink another shaft, and have made arrangements with Mr. Reed to have several tons of Chance ore worked by him at the Sterling mill. They have several ounces of amalgam in their cabin, taken out by themselves.

N. Z. Pierce and Charley Taylor are still working on their mammoth wheel, which will be 30 ft. in diameter. They expect to be able to run six arastras with it.

Lato news from Wickenburg state that the Vulture is running, and that business is brisk.

Jan. 25th: The miner's of Walker's district are taking out lots of gold. Jackson McCrackin is working a ledge that pays from \$40 to \$60 to the ton, free gold. Alfred Shupp and Jake Linn are running the Johnson water arastras. Other parties are also running arastras, and doing well. Last week, Shupp showed us about \$600 of as pretty gold dust as we have ever seen, which he took out of rock crushed by him in arastras.

Joe Yong stepped into our office yesterday evening, and exhibited the proceeds of 100 lbs. of Chance ore. Said proceeds nearly filled two yeast powder cans.

Work on the Chase is progressing. We saw one day this week a piece of rock from this lode, which was more than half gold.

Mr. W. C. Reed has succeeded in getting over \$100 to the ton out of unassorted rock from the Sterling lode.

COLORADO.

Georgetown Miner, Jan. 23d: An assay made recently by Dr. Munson, at the Denver Mint, of ore from the new Philadelphia lode, gave a return of \$381.72 silver per ton. The shaft on the lode was about thirty feet deep at the time of our last visit. The ore bears a striking resemblance to the ore from the celebrated Terrible lode, carrying a little less zinc blende and more galena than the latter. The gangue of the two veins is precisely alike.

Work has been resumed on the east shaft of the Nuckoll's lode. This shaft is now down 85 feet.

The lode recently discovered by Richard Simmons, near the foot of Sherman mountain, is proving itself one of the best in the country. It has been named the "London" lode.

Vigorous operations still continue on the Baker mine, at West Argentine. Work in the adits is being pushed night and day and a large amount of ore is being brought to the surface.

Work has been resumed on the Georgetown tunnel.

Jan. 30th: While in Denver we were shown several specimens of gold bearing quartz from Granite district. The mines there are rich in free gold, the ore being black iron cubes so rich as to have a bronze appearance. The quartz varies in color from a light gray to a rich dark brown. Nothing but the ordinary stamp mill pro-

cess is necessary to insure rich returns and those who get such machinery earliest into the district will reap rich profits.

Garrott, Martine & Co. are putting an engine in their works. The cold weather having induced them to depend no longer on water for power.

We have it from good authority that reduction works on a large scale will be erected here soon. It is the intention to have them in operation early in the coming autumn.

We recently saw a beautiful specimen of argentiferous galena and sulphuretted ore, from the General Marion lode, on Leavenworth Mountain, near the Argentine lode.

C. Marble, has started a tunnel in Columbia mountain, for the purpose of striking at a great depth, and working some valuable property on that mountain.

A man in digging a foundation for a house, near the base of the mountain, just below the Alpine Co's mill in this town opened up a fine silver lode. The ore is said to be first quality.

Messrs. Clark & Crow, have shown us some splendid specimens of ruby silver taken recently from the Terrible lode. The ore grows richer as the shaft descends.

A new lode has been discovered on Griffith mountain, near the Comet, that shows some very fine sulphuretted and argentiferous galena ore on the surface.

The Silver Dream, a lode recently discovered, about 50 ft. above the Lilly, and at the depth of three feet, has a rich ore vein four inches in width. Three pounds of this ore, tested by C. S. Stowell, Esq., gave a result of \$532 in silver, coin value, to the ton of ore.

Denver News, Jan. 20th: We were shown to-day, two choice specimens of argentiferous galena ore, from the Bunker Hill and Independence lodes, in Beven district, Summit county. They are the largest specimens of the kind that we have seen. The ore from the Bunker Hill, weighing 200 pounds, and that from the Independence lode, 400 pounds. Assays made from the ore prove it to be of great richness. The specimens will be shipped to Boston, Mass.

Central City Register, Feb. 4th: Blake, McClurg Bros., and others recently leased the old Peck & Thomas claim, at Gregory Gulch, and almost immediately broke through into a two-foot vein of pyrites, thickly studded with native gold. Mr. Kenyon began running ten cords of Pewabic ore, yesterday.

Mr. Van Doren has commenced work on the Fairfield Co's property, with the view of leasing it should he be able to make it pay under present conditions. Some 2½ cords of ore, crushed by Mr. Perogriue at Black Hawk last week, produced 14 ounces. Mr. Beach last week took up 175 ounces of gold from three days' run of 25 stamps. The rock came from ground within 60 feet of the surface.

DACOTAH.

The Reese River *Reveille* of Feb 8th publishes a letter from the Sweetwater mines dated Jan. 26th, from which we extract the following: Two new districts have been formed west of this toward the head of Sweetwater, and many new quartz locations have been made in this and California districts. The gulches, as far as prospected, have proven better than we thought they would. Fifty claims of 200 feet each have been located in Atlantic gulch; and of these 10,000 feet are below the ledge, all of which it is thought will pay down to claim No. 20 as much as \$10 to \$15 per day; but up near to the ledge the pay will be better. There is a small gulch on Atlantic creek, which has all been located and prospected, and which pays 25 to 50 cents to the pan. There are three to four ft. of dirt. The Bridger Co's claim has been opened 40 ft., and the ledge has been cut through and proves to be 20 ft. wide, with pay rock all the way. The decomposed part, next to the foot wall, prospects 75 cts. to \$1 to the pan. The Atlantic stands No. 1 in the whole country, and we are going over in a few days to put up a house and do two or three weeks' work on that and the Mammoth ledge. We opened the latter west of our old shaft, and found an eight ft. ledge looking better than in the old shaft. For both quartz and placer mines the country looks favorable; the quartz ledges look better as they are prospected, and the gulches are proving better than we anticipated.

Nevada *Gazette*, Feb. 12th: A company of adventurers recently started from Virginia City for the Sweetwater mines, parties in this county are also preparing to leave for the same destination early in the spring, and the indications are favorable for a grand rush of miners to that region next season. It bids fair to be in 1883 the El Dorado of the restless prospectors, as Gold Bluff, Kern River, Fraser River, Washoe and Reese River have been in years past. A few days

since we received a letter from a friend who went to Sweetwater last October. He has devoted the most of his time for the last 15 years to prospecting, with poor success, but tells us he has struck it at last. From his representations, ledges have been discovered containing remarkably rich rock. The first discovered was the Cereso, in June last, by Henry S. Redell. Four tons of rock from this ledge hauled to the mill at Springville, this side of Salt Lake, yielded \$7,000 a ton. The yield may have been greatly exaggerated, but it must have been large, for the owners are taking out the rock and having it hauled 500 miles to be crushed, and are making money. Two or three other ledges are referred to, the owners of which are crushing the rock in hand mortars, and making from \$5 to \$20 a day to the man.

Silver Bend Reporter, Feb. 8th: Quite a number of our nomadically inclined citizens are making preparations for an early trip to the gold mines of Dacotah, in the hope of there realizing their dream of life.

IDAHO.

Owyhee *Avalanche*, Feb. 8th: Rich gold and silver mines have been struck in the bottom of the shaft in the Potosi mine. We noticed on the dump a couple of tons just taken out, and it was truly a goodly sight to look at. In much of it could be seen pure crystallized silver, and also gold. The rich streak is from 12 to 14 inches in width, besides broken veins on each side that indicate a large ledge of solid quartz at a greater depth.

Yesterday we saw at McDonald & Co's assay office two gold and silver bricks, valued at \$10,900. They were extracted from Ida Elmore ore, worked at the Lincoln mill and was the result of five days' straining, leaving by far the richer portion of the amalgam in the battery. Many more quartz mills are wanted to work our mines. Enough quartz could be taken out of those now being worked to supply double the number of stamps running in Owyhee. There are a great number of rich mines here that will remain idle next summer because of the scarcity of means for working them.

MONTANA.

Post, Feb. 1st: The indications are that the Crow Creek mines at Radersburg, will be a lively mining camp in the spring. There are several tributary gulches where good pay is found, and the bars prospect well. About 2,000 claims are recorded. Three ditches, it is thought, will supply all the water required. Two of these are already completed, the third will be by the 1st of June. The diggings are generally shallow, but on Johnny and Charlie gulches the ground is deeper, and several companies are drifting this winter. It is believed there is good even pay over a large extent of gulches and bars, and prospecting is going on quite briskly.

The Union mill has received a gold brick weighing 240 ozs. as the result of a seven days' run with 25 stamps.

Sixteen hundred ozs. of bullion were received from the Esler, Argenta, Smelting Works, on Tuesday evening. The bullion is principally silver, but having been reduced from top quartz, contains some gold.

The Phillipsburg correspondent writes: Several tunnels have been commenced, two running at different angles on the Camanche Hill, one under the Cliff Hill and one upon the St. Louis Mill Co's mill site near the central portion of Phillipsburg, intended to tap the Cordova lode, and for discovery purposes. The work upon the former is in progress. The St. Louis Mining Co's mill, since the holidays, has not disturbed our peaceful slumbers. Old quartz men predict that much the largest average runs will be made from the Cable rock yet made in the Territory. Another mill will be placed on the Alexandria lode in the spring.

A. Barber, writing to Mr. Byam of Virginia, gives the following, concerning operations at Argenta. The Esler smelting and cupel works are running satisfactorily. Ores are being smelted from several different leads, and all are paying. I was at the furnace a few evenings since, when a 70-lb. chunk of silver was taken out. To-night, or to-morrow, a very large piece will be taken out, as there is 10,000 lbs. of rich lead in the charge. Another cupola is being erected as fast as possible, and it is the intention to add one after another until there are five in the row—the same power for furnishing a blast being adaptable to all. The second furnace has been let out to contractors for \$450, Mr. Esler furnishing the material.

NEVADA.

Black Rock.

Virginia *Enterprise*, Feb. 14th: It is now quite certain that the Black Rock mines, so much lauded a few months since, are quite worthless. The mills erected in the district have not been able to save even a trace of the precious metals in working many tons

of the ore. The mills already erected will be taken down and removed, and those ordered in California will not be brought up—the orders having been countermanded. Much money has been fruitlessly expended in these Black Rock mines first and last, and some very singular assays and results by mill process have been reported. It appears to us that there has all along been something rotten in that region besides the ore—a sort of clay.

Esmeralda.

Union, Feb. 18th: Mining operations have been partially suspended on the Silver Champion, Palmetto district.

The Piuo Grovo correspondent writes: Two mills, of 10 stamps each, and one steam arastra are kept busy night and day working ore, and a third is in course of construction by Messrs. Toombs & Abrahams. The latter is expected to be in working order within 60 days. The Wheeler Co. will, within a week, have finished a run of 500 tons of ore worked at the Pioneer mill, which will average from \$40 to \$50 per ton. Judging from the appearance of the ore in sight in this company's mine there will still be left from 600 to 1,000 tons of rock equally as good if not better.

Wilson's first run in his new mill of 50 tons of rock from his mine, turned out better than he expected. The run was made up of second and third class rock which he estimated would pay from \$12 to \$15 per ton, but the clean up showed an average of \$36 per ton. His mill is now making a run on 75 tons of ore taken from that part of his mine leased to Toombs and Abraham. The ore is taken from a vein at least 12 ft. thick, and will pay \$50 to \$60 per ton. Abraham has just returned from Virginia City where he went with the bullion from 40 tons worked in Crosman's arastra. The brick made from the bullion was valued at nearly \$2,000, showing an average yield of \$50 per ton.

The Midas Co. will soon commence taking out ore for another run. On the 12th of January, Supt. Bourne exhibited a brick worth \$15,000 to the Virginians, and the company declared a third dividend of \$8 per foot.

Virginia *Enterprise*, Feb. 15th: E. Ruhl-ling & Co., assayers, yesterday received from Pine Grove a lot of 450 ozs. of gold bullion valued at about \$7,000. About \$1,300 of this amount was extracted from ore from the Wheeler and the remainder from the Wilson mine. The ore was worked in the new Wheeler mill, its first run. All the mines that are opened are looking well.

Humboldt.

Unionville *Register*, Feb. 1st: The amount of refined bullion shipped from the Montezuma smelting furnaces, for the year 1867, amounted to \$48,192, and the amount of crude bullion on hand the first of December, 1867, amounted to \$63,037, making a total yield for the year of \$111,229. This yield is the result of not more than four months steady running during the past year.

The Manitowoc mine is yielding largely, and looks better than ever before. The mill is kept constantly running.

Fall & Co. shipped yesterday 800 ozs. of bullion. Value, \$1,000.

The Dun Glen correspondent writes: Owing to the state of the roads, the Essex mill has not yet been completed. The Essex mine has suspended work for the present. The mine looks well, and operations will shortly be resumed again. The Empire mine will be put in running order as soon as the weather becomes favorable. The Monroe Series is progressing very favorably. It is one of the richest and best developed gold-bearing quartz ledges in the State. Twenty-eight tons of the rock, crushed at Holt's mill, in Winnemucca, produced \$5,508, and the tailings will probably yield a good remuneration.

Feb. 15th: Gov. Fall has purchased the Etna mill from the Nevada Co. in New York, and will remove it to Unionville at an early day in the spring.

Pahrnanagat.

Reese River *Reveille*, Feb. 13th: We saw a collection of ores to-day from Pahrnanagat district, which would add to the credit of the best district in the State. A number of the larger and finer specimens were from the List and Illinois ledges. The specimens from the List were of marked character, and resembled the best class of ore produced in Hot Creek, Reveille, and Empire districts. It contains a fair proportion of the mineral Stetefeldtite, which is the chief bearer of silver in those and other districts in the southeast. Several pieces of ore were taken from one of the walls of the List, which were as smooth as ivory or polished marble.

Feb. 15th: The 10-stamp mill in process of erection at Hiko, in the district of Pahr-

nanagat, for a New York company, will be opened shortly.

To-day we saw at the office of Boalt & Stetefeldt five certificates of assay of ore from the List ledge, the principal vein in the district, which show a remarkably high average. No. 1 yielded at the rate of \$448.96 of silver per ton; No. 2, \$213.68; No. 3, \$207.40; No. 4, \$160.26; and No. 5, \$125.70. The samples were procured from the surface and down to the depth of 75 ft., the lowest opening in the mine.

Reese River.

Reveille, Feb. 8th: J. W. Bailey, agent of the Centenary Co. in Newark district, shipped to-day to New York 12 bars of silver bullion, valued at upwards of \$14,000.

The superintendent of the South American mine is sinking a vertical shaft for the purpose of running levels at a considerable distance below those last opened.

Feb. 10th: The property of the Savage Consolidated Co. on Lander Hill, consisting of mining and blacksmith tools, and the ore dump containing 2,000 tons of low grade ore, was recently sold by the sheriff for \$500.

Feb. 12th: The mill of the Twin River Co. in Ophir Cañon has been stopped for repairs, and the placing of new pans. In the meanwhile, the mill will be supplied with salt from the Lone Mountain marsh.

Feb. 13th: Preparations will be begun shortly for sinking a vertical shaft in the ground of the Timoko Co. It will be sunk in the hill several hundred feet above the mouth of the incline through which the mine has been principally worked.

Silver Bend Reporter, Feb. 8th: In Palmetto district all work save that done by two or three of the oldest residents has been suspended. Horace W. Barton and Frederick Conn are making preparations to develop the New York ledge the coming spring. The Dixon Co. also intend to resume labor upon their mines early in the spring. The owners of the Kentucky ledge have taken the proper steps to secure a patent for their mine under the Act of Congress of July 26th, 1866, after the issuance of which work of the most thorough kind will be commenced. The Kentucky is a fine looking vein, carrying an abundance of mineral, and has been opened to a considerable extent. The most extensive operations carried on in Palmetto district have been by the New York and Silver Peak Co., which has several locations in the district.

The Austin correspondent of the Virginia *Enterprise* of Feb. 4th, says: Working tests of assorted ore from the Buckeye lode in Summit Cañon, have been made with excellent results—10 tons yielding \$300 per ton, six tons \$260 and four tons \$230. There are now 400 tons of fair milling ore on the dump, and as the reliability of the mine has been proven, the company intend to build a 15-stamp mill early in the coming summer. The Eclipse is likely to become the property of the Buckeye Co., as a negotiation for its purchase is now under consideration. The Newark mill has closed for want of salt. A batch of 14,000 ozs. of bullion arrived in town two days ago, being the clean-up of a 14 days' steady run. This is at the rate of \$100 a ton for the ore worked.

The same correspondent writing to the *Enterprise* of Feb. 14th, says: In Santa Fe district 23 miles south of Austin, on the eastern base of the Toyabe range, are situated the mines of the Yosemite Consolidated Silver Mining Co., a San Francisco incorporation. They consist of six ledges located in 1864, most of them being on the dividing line between a gray silicious limestone and a dark colored slate. Though considerable surface work has been done, none of the lodes can be said to be developed. The greatest depth attained on the Yosemite No. 1, which is the most promising of the six veins, is little over 40 ft. This lode is six to seven feet wide at that depth, but is not all pay ore. On the foot wall there is a streak 15 inches thick which gives a pulp assay in the mill of \$140 to \$150. The next 24 in. is milling ore of \$70 to \$75 grade, and the balance of the vein matter is a mixture of clay, slate and quartz. The ledges all show fair milling ore of low grade—that is, as the ores in this region are classified—ranging by mill assay from \$60 up to \$150 per ton. Several batches of selected ore worked in Austin recently, gave encouraging returns, 1½ tons assaying \$226, one ton \$147, two tons \$91, and 2½ tons \$73. Quite a number of men are idle owing to the stoppage of work in outside districts. The Combination mill started up on Friday last.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, Feb. 5th: The proprietors of the Petaluma mill, Lower Gold Hill, have purchased the boilers formerly belonging to

(Continued on Page 120.)

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.

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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1867.

Mr. C. T. Raney is our duly authorized agent for Sacramento County. Nov. 29, 1867.

Mr. L. G. Yates is our duly authorized traveling agent. July 18, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 16, 1867.

Mr. H. C. Northrop, is our duly authorized agent for Oregon, Washington, Idaho, and Montana. Aug. 17.

OUR NEW YORK AGENCY.—Mr. M. A. LATROPP, formerly of California, is our authorized Agent in New York. Parties in the Eastern States who desire to subscribe for or advertise in the MINING AND SCIENTIFIC PRESS, can address Mr. L., at No. 726 Broadway, for the present. Nov. 26, 1867.

San Francisco:

Saturday Morning, Feb. 22, 1868.

Notices to Correspondents.

MINER, Clayton.—The fatal accidents occurring to miners while following their occupation, are far more numerous with those engaged in mining for coal, than those employed in obtaining metals of all kinds. The inspector's reports for Great Britain for the year 1866, disclose the fearful facts that during that period, 1,484 men lost their lives by violence in and about the 3,192 collieries of Great Britain last year. In 1865 the number of lives lost was 984, showing an increase of 500 deaths in 1866. For every 67,887 tons of coal raised a life was sacrificed. The number of men employed in the collieries of Great Britain was 320,663. Out of the 1,484 deaths in 1866, 651 occurred from explosions of fire-damp. The deaths from this cause alone in Great Britain in the ten years ending 1865 were 2,019. The total number of deaths from all violent causes in the ten years was 9,916, about 20 per cent. of which was caused by fire-damp explosions. The number of deaths from falls in mines in 1866 was 361; from accidents in shafts, 162; from accidents underground, 203; and from accidents above ground, 107. Of the deaths from fire-damp, 361 occurred in the Oaks Colliery, 91 at Talk-o'-the-Hill Colliery, and 38 in the Victoria Colliery, in Dukinfield.

ONE ANXIOUS.—To this correspondent, as to several others, who have at various times forwarded communications requesting to know when it was probable that the new mode of amalgamation and reduction alluded to in our columns, about three months ago, was likely to come into operation, we have to give the following general reply, which, at the same time, we trust will be accepted by several of our interior exchanges, who have also commented on the subject. The chief and most influential parties, who had promised to see the matter alluded to carried into practical operation, were compelled to withdraw from the undertaking in consequence of being unable to obtain the assent thereto of their partners, occupied in different branches of business. It is probable, therefore, if the promised improvements are to be carried out at all, it will have to be done almost wholly by the influence of those interested in mining operations. We are informed that it is not unlikely but the whole matter will be in the course of two or three months brought prominently before the public.

FOR EXTERNAL POISONING BY CYANIDE OF POTASSIUM.—As this article is now being extensively used in this State, the following may be worth noting. The foreman of the gilding department of the American Watch Works writes to the Boston *Journal of Chemistry*, that the most effectual remedy for the painful and troublesome ulcers which it produces upon the hands of those who use it, is, according to his experience, the proto-sulphate of iron (copperas) in fine powder, rubbed up with raw linseed oil.

THE YOSEMITE BILL.—The Senate has followed in the wake of the Assembly, and passed this bill over the Governor's veto.

"Dynamit"—The New Blasting Powder.

We made a brief mention last week of some experiments with the new blasting powder, which has recently been introduced into this city from Hamburg, Germany, where its mode of manufacture is said to have been discovered about a year ago. This powder is evidently very similar in its composition and effect to the terribly effective nitro-glycerine;—it appears in fact, to be nitro-glycerine itself, in a solid, instead of a fluid form, or rather the fluid material mingled with and absorbed by some porous non-explosive substance, such as charcoal, sawdust, or some similar article, by which it is rendered comparatively safe under the application of ordinary percussion, while it may be burned without explosion, when spread out or laid loosely in the open air. It is readily exploded when closely packed within powerfully resisting walls, and its action under such circumstances is terribly effective. The explosion is produced by a small charge of fulminate, such as a percussion cap of that kind, fired by a fuse, in the midst of the charge. Whatever the material of this new explosive compound may be, it is evidently a much safer agent to handle than nitro-glycerine, or even than gunpowder; unless, like the former, it may be subject to uncertain and unknown chemical changes, by the lapse of time or change of temperature. Yet we are yet aware that any such objection exists.

Its safety from accidental explosion may be inferred from the fact that while the agent was preparing his experiments at Lime Point, he had a lighted cigar in his mouth most of the time. At the time of making his first experiment, when about to place the charge in the cannon ball, he opened a small box (about the size of a common yeast powder box) filled with the explosive compound. The bystanders, noticing his cigar, immediately began to fall back; when, to satisfy them of their safety, he took up a little of the powder from the box, which he had placed upon the ground, spread it upon a piece of paper and applied his cigar to it; it burnt very much like damp powder, setting the paper in a blaze. All this took place in the open air within eighteen inches of the open box of explosive compound, and 200 people standing round! A few minutes after, less than half an ounce of the powder from the same box burst the 42-pound shot into atoms, without even a paper wad being placed upon the top of it, a thing which could not have been accomplished with the best of gunpowder except by securing the charge with a closely fitting screw plug. The powder is slightly damp, and when tamped lightly packs very close; in which condition alone, and when confined, it is destructive.

The vast importance to the miner of a safe and effective blasting powder, is a matter of the very highest moment, and for this reason much interest is attached to all inventions relating to the manufacture of that indispensable agent; especially is this the case when additional advantages are obtained over ordinary blasting powder, without a corresponding increase in the cost of production. The experiments at Lime Point show that to obtain its fullest effect, this new powder must be confined within firm inclosing walls. The effect upon the rock is crushing rather than scattering—it lifts more, but does not throw as much as common powder. But little smoke appears to result from its burning, and so far as we are aware, no very deleterious gas is produced. It does not require a hole or chamber more than one-quarter the size of common powder to produce an equal effect in hard rock. The amount of labor saved thereby in drilling, is a most important consideration.

Such evidence would seem to imply a most important advantage in all underground work. There were quite a number

of practical miners present, all of whom, so far as we could learn, expressed themselves decidedly favorable to the new powder, and were anxious to give it a trial. Of course time alone can fully test its value and safety, and as a manufactory will be immediately put into active operation in this city, all who so desire will soon have the opportunity to test it for themselves. The powder is flocculent in appearance—like sawdust, of a reddish-brown color, easily compressible into flakes between the fingers, and moist to the touch. Its taste, and the effects of the same, is precisely like that of nitro-glycerine. It can be furnished cheaper, in proportion to the amount of its effectiveness, than common powder. It is called "Dynamit or Giant Powder."

Interesting Exhibition

A very interesting exhibition of some of Nature's hidden mysteries, is now being made at the S. E. corner of Montgomery and California streets, in this city. This exhibition consists of a large number of massive slabs of sandstone, upon which have been pictured, by the hand of Nature, views, as it were, of natural landscape scenery—here undulating plains covered with a dense growth of shrubbery, and there, lofty and abrupt mountain heights and slopes, as though they were the photographic representations of adjoining scenery, covered with dense miniature forests. These stones have been termed "photographic rocks." They are obtained from a locality in El Dorado County, known as Pleasant Valley, and situated about thirteen miles southeast from Placerville. They were first discovered by a party of hunters, two or three years ago—a small outcrop only being seen. Specimens from the same locality were exhibited at the last State Agricultural Society.

The right to excavate, market and utilize these rocks, was subsequently purchased by a company now known as the El Dorado Landscape Rock Co., of which Mr. S. Fleming is agent. The Company has got out a large quantity of this rock, and sawed it into slabs about four inches thick, as now exhibited. In prosecuting this work, Mr. Fleming has uncovered a face of the deposit from four to six feet high, and about seventy-five feet long. It is cut off at either end by ravines; but is supposed to run back into the hills for an indefinite distance, possibly two or three miles. The pictured stratum of sandstone rests perfectly horizontal in position, upon a bed of soft steatite, and is about four feet thick, so far as opened. Superimposed upon this sandstone, but separated from it by a seam of silicious clay, a few inches in thickness, rests a deposit of infusorial rock, exactly corresponding in character, with the exception of its coloring matter, to the "electro-silicon," which is now being sold in this city as a polishing powder. This layer is a little less in thickness, so far as uncovered, than the sandstone layer, and like it is covered with the picturesque representations, as above described, only finer and more delicate in character. This last characteristic is due to the fineness of the grain of the material—the sandstone being quite coarse and harsh to the touch, while the infusorial rock consists of a slightly indurated mass of impalpable powder; silica being the main component of both.

We have said that both layers are pictured; but it is somewhat remarkable and quite inexplicable, that while the tops of the pictured trees and shrubbery of the sandstone hang down, like the shadow of a tree in water, the corresponding pictures of the upper layer of infusorial material stand upright, in a natural position. When in position, the one is, as it were, the shadow of the other!

SPECULATIONS WITH REGARD TO THE ORIGIN OF THESE PICTURED REPRESENTATIONS.

These "pictures" are generally supposed

to be the result of the infiltration of manganese and iron, in a state of solution, among the interstices of the grains of sand which compose the rock—such infiltration taking in an arborescent form of crystallization, precisely similar to that which is often found in the seams or interstices of slate, and other rocks; only that in this case the intrusive substance is spread out so as to form the perfect representation of a tree or shrub within the body of the stone, while in a seam, only a flattened or sectional representation can be seen. The arborescent appearance in these sandstones is precisely like that seen in a beautiful and clear moss-agate, with the only exception that the lines are coarser, owing to the coarseness of the grain of the stone. That, however, is not the case to such an extent in the upper layer or infusorial deposit, where the grain of the stone is reduced to an impalpable powder. In this the "pictures" are as delicately formed as in the agate.

Another theory has also been suggested, that this miniature sylvan scenery now pictured upon the rocks, was once an actual plant growth, upon and into which the silicious formation was subsequently precipitated through aqueous agency, and that the "pictures" are merely the carbonaceous remains of that former vegetable growth. There are several objections which may be urged against this theory; one of which is the fact of the inverted positions of the "pictures" in the lower stratum (which would serve rather to sustain the infiltration theory); another objection would be found in the apparent total absence of anything like the debris of an earlier or partially decaying and fallen vegetation.

These "pictured rocks" certainly form a very interesting study for the geologist, and we presume, that since they have now been brought so prominently to the notice of the public, through the enterprise of Mr. Fleming & Co., that we shall soon hear from some one able to more fully enlighten the world upon such matters. In the mean time we would recommend those curious or interested in the more mysterious works of Nature, and all others, in fact, to go and see this unique exhibition. We understand that one of the objects of the company is to see if these remarkable rocks can in any way be utilized in the arts. We see no reason why they might not be made highly ornamental in heavy stone panel work. Perhaps some of our enterprising builders will try the effect of such an experiment.

DR. LIVINGSTONE.—At the Meeting of the Royal Geographical Society, London, on Nov. 25th, a letter was read from Dr. Kirk of Zanzibar, which stated that a native had been brought to him who had returned from the interior, and who had seen a white man in one of the villages near Marungu, accompanied by thirteen blacks. Dr. Kirk showed the native his albums of photographic portraits. The first book contained a fine side view of Dr. Livingstone. The native did not recognize it as the man whom he had seen in the interior. But the second book contained a staring likeness of Dr. L., which had been kept as a caricature. To this the native at once pointed, saying, "That is the man!" Dr. Kirk, however, had suspended opinion until he could confer with the other men who were with the native at the time the white man was seen. Marungu is 650 miles inland, and the time was about the end of 1866.

TITLE TO A QUICKSILVER MINE.—A dispatch, dated Chicago, Feb. 21st, says: The House Judiciary Committee has had for some time under consideration the petition of William McGarratan, asking to have confirmed to him the title to Parishes Grandee, a mineral tract in California, one of the richest quicksilver mines known. It has heard numerous lengthy arguments on both sides, and will soon report, confirming the old Mexican title, under which McGarratan claims, upon his paying the minimum price of the mineral lands.

British Mining Educational Institutions.

In order to render as complete as possible an account of the various mining educational establishments in different countries, the following brief history and description of the School of Mines of London, and other smaller and scattered institutions of similar character in other parts of Great Britain, has been furnished, at our request, by our fellow citizen Prof. Rowlandson. Professor R. was not only personally acquainted with the original director of the Royal School of Mines, the late Sir Henry de la Beche, but was also in familiar intercourse with all the original professors, a full moiety of whom still continue to hold the same professional chairs. From his known tastes, enthusiasm and deep acquaintance with many of the most recondite parts of geology, particularly in their relation to metallic veins, as well as the most economic modes of utilizing their contents, Professor R. enjoyed the privilege of access to the magnificent museum of the Institution about to be noticed, even on days when the public was excluded, and also to the various lectures, although not a student. From such intimate acquaintance with its origin and founders, the following account from his pen may therefore be considered a fair synopsis:

BRIEF HISTORY.

The inception of a British National School of Mines did not receive a definite form until a very short time before its public institution. Outside of those immediately intrusted or indispensably connected by their public position with the carrying into effect of such an institution, the writer believes he was about the first person of the general public to whom this design was privately communicated by the late Sir H. de la Beche. Like many other institutions, it grew to its present condition, slowly in its infancy, but rapidly as it outgrew its swaddling clothes.

In the year 1835, while occupied under the ordnance department in making a geological survey of Cornwall, the late Sir H. de la Beche suggested to the then Chancellor of the Exchequer, that a collection should be formed, and placed under the charge of "The Office of Works" of "specimens of the various mineral substances used for roads, in constructing public works or buildings, or otherwise employed for useful purposes, or from which useful metals could be extracted, and that such collection should be arranged with every reference to instruction."

A locality was found for the deposit of specimens, in which specimens poured in abundantly, especially from Cornwall, who "one and all" greatly assisted. The collections, including models of mines and mining machinery, accumulated rapidly. The collection continued to augment by presents and the exertion of the Geological Survey, so much so that the rooms originally occupied became insufficient for their reception, in consequence of which the adjoining office, then occupied as the Earl Marshal's office, was added thereto. A curator, the late Mr. Richard Phillips, F. R. S., was appointed, who being also qualified, performed at the same time the duties of chemist. When however the Geological Survey and the Museum of Practical Geology were combined, it was first denominated the Museum of Economic Geology, the necessity of proper accommodation became so pressing that it was finally resolved to erect the building in Jernyn street, in which is now located the "Royal School of Mines."

These collections were divided and designed not as mere assemblage of specimens, calculated to strike only the vulgar or uneducated eye from their brilliancy, color, or singularity of form, but to be instructive with reference to the especial object of each department, and to become useful as illustrations, when teaching by lectures or other means. In order to render these collections available to the general public, the museum is open the three first days of the week. For the instruction of visitors, succinct treatises are furnished for a few cents a copy for each division. A ceramic and a vitreous collection, each of great value and interest, also occupy limited portions of the museum. Under the existing conditions of California, these may be dismissed from present consideration. The paleontological collection, consisting of fossils

belonging to both the animal and vegetable kingdoms, is the finest in the world. The metallic series is arranged so as to show the various ores of the different metals, their mode of occurrence in the earth, the methods employed in their extraction, and the means used for rendering them marketable,—at which point the labors of the miner terminate, and those of the metallurgist commence. The last named are also fully illustrated, and the qualities of the different metals, either alone or mingled as alloys, are carefully arranged so as to exhibit in the most instructive manner their various applications in the arts and manufactures.

The collection of the modes of occurrence of ores are extensive, and are arranged so as to be the most effectively instructive. In this class also are exhibited the models and drawings of various machines employed in draining mines, and the manner of raising and dressing ores. It may be briefly mentioned that the geological positions of coal, and the modes adopted for mining that valuable mineral, occupy a very conspicuous place; more limited in extent is the series illustrative of the formation of rocks at different geological epochs, and the changes which have occurred since their deposit, some of which possess a high economic as well as scientific interest, as a particular example of which may be mentioned that change called "cleavage," which is best studied in roofing slate, owing to its great durability when divided along the plane of cleavage as compared with rocks, divided along the line of lamination corresponding with the planes of their deposit.

THE ROYAL SCHOOL OF MINES.

Soon after the building in which the present School of Mines is located was resolved upon, suggestions were thrown out to those in authority as to the advantage that would be derived by the establishment of a School of Mines. Whilst these negotiations were pending, the writer had several conversations and interviews with the late Robert Stephenson and Sir Henry de la Beche, as to the most appropriate locality for such a School, to the last Mr. Stephenson always contending that Truro, the county seat of Cornwall, was the most desirable. The final result, however, was that the authorities, and I think wisely so, decided on fixing upon the metropolis as the fittest locality, after all things *pro* and *con* had been fairly weighed. The building being erected, the museum being collected, and all the first professors excepting Dr. Percy, being already attached to the Geological Survey, it required little preparation to put the conception into actual execution. Sir Henry de la Beche the chief director, was consequently enabled to deliver the inaugural address on the 6th Nov. 1851, which was followed by introductory ones by the various professors, the respective chairs being then filled as follows: 1—Chemistry, Lyon Playfair, C. B.; 2—Metallurgy, John Percy; 3—Natural History, the late E. Forbes; 4—Mineralogy, Warrington W. Smyth; 5—Mining do.; 6—Geology, A. C. Ramsay; 7—Physics, R. Hunt. The only change since that period have been the substitution of A. W. Hofman in place of Lyon Playfair, Mr. Huxley for the late Edward Forbes, the establishment of a professorship of "Applied Mechanics," at present filled by Professor Willis, and the substitution of Professor Tyndall to fill the chair of Physics in the place of Mr. Robert Hunt, who still continues to fill the office of Recorder of Mines. Instruction in mechanical drawing is given by the Rev. J. Haythorne Edgar, M. A. The successor of Sir H. de la Beche as director of the School of Mines and Geological Survey, is Sir Roderrick Murchison, Bart.

The fee for students desirous of becoming associates is \$150, in one sum, on entrance, or two annual payments of \$100 each, exclusive of the laboratories. Pupils are received in the Royal College of Chemistry (the laboratory of the School) under the direction of Dr. Hofman, and in the Metallurgical Laboratory under the direction of Dr. Percy.

Tickets to the general public to separate courses of lectures are issued at from \$15 to \$20 the course. Officers in the Queen's service, Her Majesty's consuls, acting mining agents and managers, can obtain tickets at very much reduced prices.

Certificated schoolmasters, pupil teachers, and others engaged in education, are also admitted to the lectures at reduced fees. Before the first course of lectures were completed, the late Prince Albert as Trustee of the Prince of Wales, endowed two Scholarships out of the revenues of the latter as Duke of Cornwall, and it is stated

† Mr. Stephenson was occupied for five years in the superintendence of the Columbian Gold Mining Co., New Grenada.

that others of a similar character have since been established. I have no record of what these scholarships are, but to the best of my recollection, (I was present when Sir H. de la Beche announced the circumstance), they were equal to \$150 per annum for two years, respecting which I may have occasion to refer hereafter.

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MECHANICS' INSTITUTE.

SAN FRANCISCO, Feb. 15, 1888.

To W. B. Ewer, Chairman of the Nominating Committee—Dear Sir:—The undersigned, members of the Mechanics' Institute, San Francisco, most respectfully tender through you their cordial support to ANDREW S. HALLIDIE, as nominee for President on the Regular Ticket, to be voted for at the coming election in March.

We take this somewhat unusual mode of procedure, owing to a fear that, being on the Committee to nominate for the regular ticket, Mr. Hallidie's well known modesty and reserve would prevent his accepting the nomination at the hands of his associates.

Reposing the utmost confidence in his integrity and ability to honorably fill the position named, we ask you to give the nomination publicly, in the name of the Committee.

Yours truly,

J. W. Gale, D. E. Allison, H. C. Bunker, Jr.
Robert Hall, Geo. E. Childs, Wm. J. Stoddard,
And 110 others, whose names have been published in the daily papers.

REGULAR TICKET.

Election, Monday, March 2, 1888,
FROM 12 M. TO 9 P. M.

At Rooms of the Society, No. 29 Post st.

§3—The undersigned Committee, appointed by the members of the Mechanics' Institute at its annual meeting, held February 6th, 1888, for the purpose of nominating officers for the ensuing year, have the pleasure of presenting to members for their approval the names of the following gentlemen.

In selecting your nominees, the Committee, in obedience to the voice of the members, have presented to each candidate for his endorsement the following questions, which have been fully approved by them:

1st—Economy and retrenchment in all matters relating to the affairs of the Institute and its proposed Industrial Exhibition.

2d—A individual and collective effort to afford instruction to junior members and apprentices by means of classes, lectures, increase of library and other available means.

3d—Faithful support to the principles of Eight Hour labor.

4th—To engender friendly and kindly feeling between members, especially in debates.

5th—Hearty and indefatigable co-operation in insuring success in the forthcoming Fair; voluntary services by Executive Committee, no member of which shall have direct or indirect interest in any pecuniary transaction arising therefrom.

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C. R. STEIGER,

M. W. SPAULDING,

C. F. BASSETT.

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A. S. HALLIDIE.....Wire Rope Manufacturer.

For Vice President,

JOSEPH WILCOX.....Master Builder.

For Treasurer,

HENRY L. DAVIS.....President S. F. Trust Company.

For Corresponding Secretary,

H. D. DUNN.....Commissioner of Emigration.

For Recording Secretary,

H. J. HOLMES.....Book-keeper with W. T. Carralt.

For Directors,

D. R. COLEMAN.....Shipmith.

W. C. PEASE.....Carpenter.

N. L. ARNOTT.....Vulcan Iron Works.

ABNER DOBLE.....Blacksmith.

DAVID FARQUHARSON.....Architect.

JACOB BROWNING.....Ornyman.

JOHN HANCOCK.....Printer.

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Geologists acknowledge that nothing has been found elsewhere of the same kind, and they are unable to explain its formation. ADMISSION, 25 CENTS. Open Day and Evening. 8v16m

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[Extract from report of the Home Office, for Dec. 1887.]

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JOHN WRIGHT.

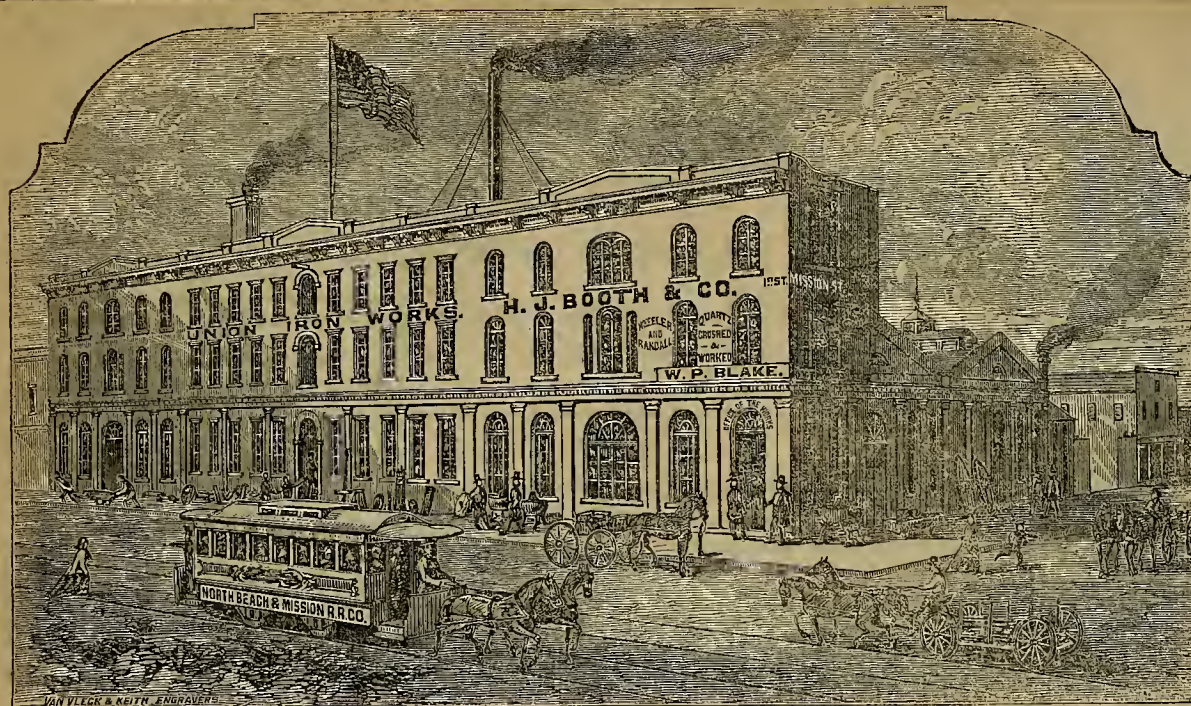
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[MINING SUMMARY—Continued from Page 119.]

the Sides Co., and day before yesterday removed them to the mill, where they are to replace two old boilers now in use.

Feb. 11th: The machinery of the new Imperial-Empire hoisting works is working finely. The shaft will probably be drained of water to-day, when drifting will at once be commenced on the 900-ft. level. It is calculated that the lead will be reached in drifting west from the shaft about 140 ft.

Feb. 12th: The Overman Co. have resumed work on their mine.

The Kentuck Co. yesterday declared a dividend of \$15 per foot, payable next Saturday, 15th inst.

Feb. 13th: Mr. Day of the Golden Eagle mill, Dayton, and John Rule of Gold Hill, have made a most important discovery of a quartz ledge on the Carson river. It is about three quarters of a mile below the San Francisco mill, and half a mile above the Franklin and Island mills. The ledge is plainly traceable a long distance, and 100 ft. in width. The croppings assay over \$100 to the ton—mostly in gold, and 1,000 lbs. of it, put through mill process by Mr. Day, he was confident would yield at least at the rate of \$20 per ton.

A new boiler is being put in the Sunderland mill, Lower Gold Hill.

Yesterday the new pump of the Yellow Jacket mine started up. Everything is in good order.

Feb. 14th: Part of the pumping machinery for the Imperial-Empire mine, at Gold Hill, arrived in this city night before last. One spur wheel weighs over 9,000 lbs.

The new mine lately discovered on Carson river has been named the Champion. One and a half tons of top rock from the lead, worked in the Eagle mill, yielded at the rate of \$21 per ton.

Feb. 15th: The total amount of bullion shipped from this city and Gold Hill during the past week was 6,021 lbs., valued at \$149,603.03.

A great deal of prospecting is at present being done in the outcroppings of abandoned mines lying from one to five miles eastward of the great Comstock lode, and in many instances paying ore has been found upon and near the surface. In Silver Star district ore has lately been found that assayed at the rate of \$50 per ton for selected ore. There will doubtless be some valuable discoveries made in our old abandoned mines during the coming summer. In Castle district, north of the city, are many very large leads, crowned in most instances with huge masses of croppings, that have been abandoned for five or six years. In the vicinity of a number of these, shafts have been sunk to a depth of from 100 to 200 ft. and in some instances tunnels of considerable length were driven in. In most cases an influx of water put an end to operations on the shafts before the leads for which they were started were reached, and few of the tunnels were ever driven in far enough to tap the veins toward which they were directed.

Feb. 16th: It is reported that the workmen in the Imperial mine, Gold Hill, day before yesterday struck a large and new body of ore, in the 230-ft. level, west drift.

NEW MEXICO.

The Central City (Col.) Register has the following in regard to the Cimarron mines: Mr. Nash, one of our best known mill-men, has just returned from the Cimarron, and tells a doleful story of the prospects of the mines there. So far as he could judge from prospecting and from the experience of others, the placers resemble somewhat those of Bear river—gold in slight quantity from the surface some distance down, then a hard clay a great depth with not even the color in it. The whole country is at present buried in snow.

Rocky Mountain Herald, Jan. 21st: Reports from the Cimarron mines are not very enticing at present. The want of water is principally complained of; gulch mines are good, some of them paying \$50 a day to the hand, while the greater number are unable to be worked from the scarcity of water.

SUBSTITUTE FOR MEERSCHAUM.—It is said that if potatoes are peeled, macerated for about thirty-six hours in water to which eight per cent of sulphuric acid has been added, well washed with water, dried in blotting-paper, and then in hot sand for several days, on plates of chalk or plaster of paris, which are changed daily, being compressed at the same time, an excellent imitation of meerschaum, answering well for the carver or any purpose not requiring a high temperature, will be obtained. But this is not all, for if after the potatoes have been thus treated they are further hoiled in a solution containing 19 per cent. soda, a substance resembling stag's horn, and which may be used for knife-handles, etc., will be formed.

ESTABLISHED [MAY, 1850.]
VOLUME SIXTEEN

Mining and Scientific Press, COMMENCING JANUARY, 1868. **DEWEY & CO., Publishers.**

Issued every SATURDAY, at our Book and Job Printing Office, 505 Clay street, corner of Sansone, San Francisco.
Terms in Advance.—One year, \$5; Six months, \$3; Single copies, 15 cents. Monthly Series, \$5.00 per year, 65 cents per number. Back Volumes from January, 1864, \$3 per volume; bound, \$5 per volume.

The Mining and Scientific Press is now thoroughly established, and enjoys one of the largest and most permanent subscription lists of any weekly journal on this coast. The individual character and reputation of its constant patrons throughout the entire coast is one of the best recommendations of its merits and value as a medium of intelligent progress and prosperity.

DEWEY & CO., Proprietors,
Mining and Scientific Press Patent Agency, Newspaper, Book and Job Printing Office, 505 Clay street, San Francisco.

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THE CIRCULATION of the Press, already extensive, is rapidly increasing, and substantial tradesmen who can profit by widely disseminating information of their business amongst the most intelligent, influential and industrial classes of the Pacific States and Territories, will find no more effective or economical medium for advertising.

DEWEY & CO., Proprietors,
Patent Agency and Job Printing Office, 505 Clay street, San Francisco.
[Jan. 1, 1868.]

College of California.

Department of Chemistry,

UNDER

PROF. W. B. RISING.

The Laboratory has recently been fitted up so that each student will be supplied with a set of Chemical Reagents at his own desk.

The Course of Instruction will include a thorough drill in Qualitative Analysis, and advanced students will be furnished every convenience for Quantitative Analysis.

Attention will be given to the detection and separation of poisons.

Also, instruction in the Assay of Gold, Silver, Copper, Lead, Mercury, and other Ores.

Students from abroad, prepared to proceed with the class in the studies of this department, may be admitted on application to the Professor in charge.

SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;
With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

By **WM. BARSTOW, M. D.**

Published by A. Roman & Co., San Francisco.

For sale at this Office.—Price, One Dollar.

With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns.

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EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS of Hardware and Carriage work. Damaged Goods repaired; Sewing Machines Japanned and Ornamented.
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6v16-3m

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RODGERS, MEYER & CO.,
COMMISSION MERCHANTS.

ADVANCES MADE

On all kinds of Ores, and particular attention
PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

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HASELTINE, LAKE & CO.,

—OF THE—

"International Patent Office,"
No. 8 Southampton Buildings, London,
Transact European and Colonial business for Patent Agents on favorable terms. 23v15tf

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And Dealers in Wool and Hides,
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Mechanical & Architectural Draughtsman,
No. 422 California street, corner of Leidsdorff.

Drawings of Models made for parties applying for patents at Washington or London. mar23-tf

JAMES M. TAYLOR,

Attorney and Counsellor at Law,
Court Block, 636 Clay Street,
SAN FRANCISCO.
2v15-1qy

McCOMBE'S

PURCHASING AGENCY,
614 Montgomery St., San Francisco.

Personal orders, small or large, and for articles of every description, promptly and carefully attended to. 26v15-3m

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Solicitor of Patents and Consulting Chemist,
Office, 371 F street, opp. Patent Office, Washington, D. C.
Late of the U. S. Patent Office; formerly of the German Laboratories of Liebig and Liebig; Translator of the "Chemistry of Liebig and Will."
DR. BREED will promptly attend to any business, and give especial attention to chemical, rejected, and other difficult and important cases. *32- Address Dr. DANIEL BREED, Washington, D. C.* 22v15-6m*

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Office, 647 Clay street.....San Francisco.
First-class gold fillings for \$3, as good as any dentist can produce in the city. Dr. Winter has practiced Dentistry twenty years—fifteen in this State. For a full upper set of gum teeth, on vulcanite base, from \$20 to \$35. Teeth extracted without pain by local application. 18v14-tf

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Excelsior Coal Oil and Lamp Store,
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Coal Oil Lamps of every description, Chimneys, Shades, Wicks, etc. Also, Genuine Standard Kerosene. 7v16 1m

COOSE BAY COAL.
The Cleanest Burning and Most Economical Fuel on the Coast.
32- Sold by all dealers in this city and Oakland.

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The well known establishment of
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MANUFACTURERS OF
Genuine Pale and Chemical
OLIVE SOAPS,

Has been removed from Beale street, between Mission and Howard, to **BRANNAN STREET**, between Eighth and Ninth, and greatly enlarged.
The capacity of this establishment is now the largest on the Pacific Coast. It is now in full operation, and prepared to supply the demand of the trade.

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BARTLING & KIMBALL,
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MARBLE WORKS,
No. 421 Pine st. bet. Montgomery and Kearny, San Francisco

Mantels, Monuments, Tombs, Plumbers' Slabs
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32- Goods shipped to all parts of the State. Orders respectfully solicited. 6v8-3m

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Manufactured in Philadelphia, Penn.
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Manufacturer of
PATTERNS AND MODELS,
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No. 10 Stevenson street, near First, San Francisco.
32- Repairing promptly attended to. 3v15tf

Shot Guns and Rifles
Selling at Five Dollars Each!
THE AMERICAN ARMS COMPANY,
are closing out their large stock of Heavy and Light Single Barrel Guns, suitable for Geese, Duck, Pigeon or Quail shooting. Heavy and Light Rifles at \$5 each. Enclose stamp and send for Catalogues.
AMERICAN ARMS CO.,
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Stamps, Seals, Steel Punches and Dies, Monograms, Notary Seals, etc., 522 Montgomery street, San Francisco. 6v16

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Has his studies and manufactures in the same building. Every kind of Apparatus, Trusses, Orthopedic Instruments, Artificial Limbs, etc., are manufactured and applied by himself.
32- He has no connection with any Agency. 24v14-11ptf

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STEAMSHIPS FOR

NEW YORK, JAPAN AND CHINA.

LEAVE WHARF, CORNER OF FIRST AND BARRAN streets, at 11 o'clock A. M. of the following dates, for PANAMA, connecting via Panama Railroad, with one of the Company's splendid steamers from PANAMA for NEW YORK.
On the 10th, 18th and 30th of each month that has 30 days.
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When the 10th, 19th and 30th fall on Sunday, they will leave on Saturday preceding; when the 18th falls on Sunday, they will leave on Monday following.
Steamer leaving San Francisco on the 10th touches at Manzanillo. All touch at Acapulco.
Departures of 18th or 19th connect with French Transatlantic Co.'s steamer for St. Nazaire, and English steamer for South America.
Departure of 10th is expected to connect with English steamer for Southampton, Bristol, London, France, and Australia, and P. R. R. Co's steamer for Central America. Through tickets can be obtained.
The following Steamships will be dispatched on dates as given below:

February 10th—**GOLDEN AGE**, Capt. E. S. Farnsworth, Connecting with HENRY CHAUNCEY, Capt. Gray.
February 18th—**GOLDEN CITY**, Capt. W. F. Lapidge, Connecting with the RISING STAR, Capt. Conner.
February 28th—**SACRAMENTO**, Capt. Wm. H. Parker, Connecting with ARIZONA, Capt. Maury.
Cabin passengers berthed through. Baggage checked through—100 pounds allowed each adult.
An experienced Surgeon on board. Medicine and attendance free.
These steamers will positively sail at 11 o'clock. Passengers are requested to have their baggage on board before 10 o'clock.
Through Tickets for Liverpool via the Canard, Inman and National Steamship Lines, can be obtained at the office of the P. M. S. Co., San Francisco, where may also be obtained orders for passage from Liverpool or Southampton to San Francisco, either via New York or St. Thomas—if desired an amount of £10 to £20 will be advanced with the above orders. Holders of orders will be required to identify themselves to the Agents in London.

For Merchandise and Freight for New York and way ports, apply to Messrs. WELLS, FARGO & CO.
The Steamship GREAT REPUBLIC, Capt. S. Doane, will be dispatched March 5th, at noon, from wharf, corner of First and Brannan streets, for YOKOHAMA and HONG KONG, connecting at Yokohama with the steamer COSTA RICA for SHANGHAI.
For passage and all other information, apply at the Pacific Mail Steamship Co's office, corner of Sacramento and Leidsdorff streets.

OLIVER ELDRIDGE, Agent.

Blanks, Blank Mining Books,

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Elegantly printed, with care and dispatch, at the office of the

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32- Orders from the interior faithfully attended to.

THOS. H. SELBY & CO.,

IMPORTERS OF METALS,

Have in store a large assortment of the following articles, which they offer

AT REDUCED RATES:

Bar and Plate Iron,

CAST STEEL;
IRON, GAS AND WATER PIPE;
WROUGHT SPIKES,
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SHEET IRON,
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RUBBER HOSE AND BELTING,

PLUMBERS' GOODS, ETC.

—ALSO—

Are manufacturing at the

SAN FRANCISCO AND PACIFIC

LEAD PIPE AND SHOT WORKS

Corner of Howard and First Streets,

LEAD PIPE, SHOT, SHEET AND BAR LEAD.

32- Orders will be received for any of our LEAD MANUFACTURES, and prices agreed upon for the year 1868.

THOS. H. SELBY & CO.,

116 and 118 California Street,

SAN FRANCISCO.

6v16-1m

INSTRUCTION

IN THE

Chlorination Process!

Parties wishing to learn the

Working of Sulphurets

BY THE

CHLORINATION PROCESS,

Can have an opportunity of doing so by applying to the undersigned, who are prepared to give practical instruction at reasonable rates. Apply to

JOHN AGRELL,

Jackson, Amador Co., Cal.

3v15-3m

PACIFIC

BARREL AND KEG COMPANY.

Having now in operation extensive and Improved Machinery for the manufacture of

BARRELS AND KEGS,

Are prepared to contract

AT LOW RATES

For supplies of such stock as may be required. Will also contract for

Stave Timber,

Of different kinds, delivered here, or at any shipping point in the interior, or upon the Coast.

32- Orders and communications to be addressed to

FLINT, PEABODY & CO.,

Agents Pacific Barrel and Keg Co.,

408 California street.

National Mineral Land Law, Instructions, Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address Dewey & Co., office Mining and Scientific Press, San Francisco.

MOSHEIMER'S

Pioneer Mining School,

ASSAY OFFICE

—AND—

Metallurgical Works,

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Having established the first Practical Mining and Metallurgical School in the United States, I would call the attention of gentlemen who may wish to obtain a practical knowledge of Chemistry, Metallurgy, etc., to the fact that I am now prepared to teach the following branches:

1.—Assaying of Ores, Metals, and other Mineral Substances.

2.—Metallurgy of Gold, Silver, Copper, Lead, etc., by Smelting, Amalgamating, Lixivation, etc.

3.—Gold Extraction, by Chlorine Gas; also, a modified process of the same, which is cheaper and quicker than the processes usually employed.

4.—Concentration.—Dressing of Ores.

5.—Construction of Furnaces, in which any kind of fuel may be used for Smelting, Roasting, etc., as well as the erection of any Machinery or Apparatus required in Metallurgy and Technology.

6.—Technology, or Chemistry as applied to any special branch of Manufacturing.

By my Practical Mode of Teaching, any person of ordinary ability can learn to assay Ores in three lessons, and the working of all the ordinary and refractory ores in a few weeks.

Gentlemen of almost every profession, who, within the last two years have graduated at my establishment, will bear testimony that from my instructions they have learned more in a few weeks than they ever expected to learn.

My charges are from \$50 to \$200.

Ores of every description assayed and worked

JOSEPH MOSHEIMER,

Pr. Chemist, Metallurgist, C. E., etc.

Office, 323 Montgomery street. Works, 2,005 Powell street. 3y16-3meov

Pacific Chemical Works.

Aqua Ammonia,
Acetic Acid,
Acids Chemically Pure,
Nitrate of Silver,
Cyanide of Potassium,
AND CHEMICALS OF ALL KINDS,
Manufactured by the PACIFIC CHEMICAL WORKS.

FALKENAU & HANKS,

Laboratory, Sixteenth street, near Folsom. Office, 619 Montgomery street, San Francisco.
25v15d

New Mining Advertisements.

Fogus Mill and Mining Company.—Location of Works: Anador County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable on the twentieth day of February, 1868, in United States gold coin, to the Secretary, at his office.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the ninth day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN J. SCOTCHLER, Secretary.
Office, No. 321 Front street, San Francisco. feb22

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street. feb22

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of February, 1868, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. feb22

Mount Tenabo Silver Mining Company.—Location of Works: Cortez District, Lander County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the ninth day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Hell, Thomas.....	109	50	\$125 00
Clayson, H. H.....	47	12	30 00
Clayson, H. H.....	91	8	20 00
Burnham, Charles.....	63	100	250 00
Gardner, F.....	124	75	97 50
Gardner, John.....	18	25	187 50
Gutenberger, W.....	20	80	200 00
Hearst, George.....	54	276	690 00
Herrmann, John E.....	102	10	25 00
Lehmann, Chas.....	24	5	12 50
Vandervoort, J. C.....	23	50	125 00

And in accordance with law, and an order of the Board of Trustees, made on the ninth day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Thursday, the twelfth day of March, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary.

Office 426 Montgomery street, San Francisco. feb22

Mining Notices--Continued.

Adelphi Gold Mining Company, Rock Creek, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of February, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, No. 429 Pacific street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixth (6th) day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the thirteenth (13th) day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. C. TAYLOR, Secretary.

Office, 429 Pacific street, San Francisco, Cal. feb8

Chilipeona Mining Company—District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, 318 California street, San Francisco, California. Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, 318 California street, up stairs, San Francisco. feb22

Die Padre Gold and Silver Mining Company, Alamos, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the tenth (10th) day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
S. B. Whipple.....	398	157	\$335 00
Wm. Bihler.....	239	24	100 00
Wm. Bihler.....	239	25	125 00
Wm. Bihler.....	411	25	125 00

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of January, 1867, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Thursday, the fifth day of March, 1868, at the hour of 1 o'clock, P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. C. McCOMB, Secretary.

Office, corner Broadway and Battery streets. feb15

Huacoco Copper Mining Company. Location: Low Divide District, Del Norte County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the fifteenth day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Birch, W. W.....	10	1	75
Burke, M. J.....	45	13	\$1 25
Brown, Geo. F.....	20	13	25
Beach, J. D. C.....	67	124	9 37
Cummings, A. H.....	40	13	1 25
Callahan, Sarah A.....	14	36	2 50
Delano, Thos. S.....	3	1	50
Delano, A. S.....	62	16	12 50
Friend, W. H.....	4	10	7 50
Glyvas, Geo. K.....	75	101	75 00
Hanson, Jno. O.....	not issued	116	87 50
Hanson, W. W.....	not issued	1	50
Herrick, A. H.....	39	5	3 75
Kleinman, G. W.....	not issued	100	75 00
Keele, Simon.....	not issued	39	50 00
Kane, Michael.....	76	1	75
Kelly, Lewis.....	not issued	2	1 50
McAllister, B. H.....	6	2	1 50
McAllister, B. H.....	78	1	50
McAllister, B. H.....	79	2	1 50
Pendagast, James.....	not issued	52	25 00
Ruggles, John.....	not issued	14	11-12 13 45
Ruggles, John.....	52	4	3 00
Sweet, S. S.....	not issued	127	95 50
Simon, James.....	19	3	7 50
Simon, Emma.....	13	3	2 50
Stelger, Alex. F.....	not issued	1	75
Stelger, Alex. F.....	not issued	1	75
Turbatt, F. B.....	24	24	18 25
Thomas, A. B.....	54	10	7 50
Thomas, A. B.....	54	5	3 75
Thomas, A. B.....	64	3	2 50
White, Martin.....	not issued	66	50 00
Watts, Noah.....	6	13	1 00

And in accordance with law, and an order of the Board of Trustees, made on the fifteenth day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Secretary, 609 Market street, on Monday, the second day of March, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

S. S. SWEET, Secretary.

Office, 609 Market street, San Francisco. feb15

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

Hope Gravel Mining Company.—Location of Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of January, 1868, an assessment (No. 20) of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to David Wilder, Secretary, at the office of the Company, No. 533 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventeenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 533 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. feb1

Kearsarge Mining Company, Kearsarge District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 408 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. feb25

La Bionca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the second day of January, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
A. Alexander.....	424	1	\$2 50
C. B. Richard & Sons.....	522	48	120 00
Benjamin Fishel.....	354	1	2 50
Benjamin Fishel.....	279	5	12 50
Louis Levy.....	201	6	12 50
Louis Levy.....	344	2	5 00
Louis Levy.....	395	4	10 00
Isaac Michaels.....	375	5	12 50
H. Newman.....	431	1	2 50
R. Newman.....	433	10	25 00
Richard Pinckney.....	113	6	15 00
Richard Pinckney.....	316	1	2 50
Conrad Stolze.....	85	10	25 00
Conrad Stolze.....	87	10	25 00
Conrad Stolze.....	309	4	10 00
Henry Holm.....	385	5	12 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Monday, the seveneenth day of February, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. SIEVERS, Secretary Protem.
Office, Nos. 312 and 314 Front street, San Francisco. feb1

Postponement.—The above sale is hereby postponed until Monday, the twenty-third day of March, 1868, at the same hour and place. By order of the Board of Trustees.

WM. SIEVERS, Secretary Protem.

Nacra Secora de Guadalupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Sonora, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 30) levied on the third day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John Bohn.....	67	10	\$10 00
John Bohn.....	173	5	5 00
H. Burdorf.....	191	10	10 00
H. Burdorf.....	192	15	15 00
Theo. Cebler.....	194	55	55 00
John L. Smith.....	198	10	10 00
And of formerly unassessable stock—			
John Grel.....	167	75	75 00
M. Kirsch.....	139	60	50 00
F. Rand.....	161	20	20 00
F. Wagner.....	176	5	5 00

And in accordance with law, and an order of the Board of Trustees, made on the third day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Badger & Chapman, auctioneers, N. W. corner of Kearny and California streets, San Francisco, California, on Tuesday, the third day of March, 1868, at the hour of 1 o'clock, P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco, Cal. feb15

Oxford Beta Tonoel and Mining Company, Esmeralda District and County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of February, 1868, an assessment (No. 25) of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to the Superintendent at the mine.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

CEO. H. BECK, Secretary.
Office, 212 Clay street, San Francisco. feb15

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of January, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-sixth day of February, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth (16th) day of March, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. feb25

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

Rippon Gold and Silver Mining Company.—Location of Works: Silver Mountain Mining District, Alpine County, State of California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the seventeenth day of December, 1867, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificates.	No. Shares.	Amount.
John Chubalan.....	1	10	\$5 00
M C Owens.....	2	10	5 00
M C Owens.....	49	15	7 50
C L Gilbert.....	3	5	2 50
C L Gilbert.....	39	45	22 50
Thomas Taylor.....	5	10	5 00
J Bunting.....	7	5	2 50
James F Stuart.....	8	10	5 00
William DeGraff.....	9	5	2 50
William DeGraff.....	10	8	4 00
James McNamara.....	12	5	2 50
James McNamara.....	13	5	2 50
J L Gullin.....	22	5	2 50
Samuel Williams.....	24	10	5 00
William McGill.....	25	6	3 00
Chas Kather.....	26	10	5 00
Chas Kather.....	27	12	6 00
C E Gibbs.....	28	10	5 00
John Bots.....	29	10	5 00
Helmy Lachman.....	31	10	5 00
Chas H Stokum.....	32	5	2 50
A W Eckel.....	33	10	5 00
Thomas Martin.....	37	40	20 00
A Rickard.....	38	45	22 50
William P Smith.....	50	6	2 50
William P Smith.....	51	6	2 50
George Patterson.....	52	5	2 50
George Patterson.....	53	5	2 50
George Patterson.....	54	5	2 50
George Patterson.....	55	5	2 50
Thomson Gray.....	57	10	5 00
D E Swinerton.....	58	5	2 50
Jacob Strubbe.....	59	10	5 00
C Kerby.....	60	7	3 50
Jacob Jetter.....	61	12	6 00
Mrs. Sarah Winnie.....	63	10	5 00
F M Ellis.....	65	5	2 50
F M Ellis.....	66	5	2 50
M Marks.....	67	5	2 50
John Smith.....	68	10	5 00
William West.....	69	5	2 50
H D Scott.....	70	10	5 00
H D Scott.....	71	25	12 50
Mary Shins.....	72	20	10 00
James Gibson.....	75	5	2 50
E Curran.....	76	100	50 00
John Buegel.....	77	7	3 50
L Farmer.....	78	8	4 00
Edward Campbell.....	109	25	12 50
C R Middlel.....	112	10	5 00
D K Swain.....	125	10	5 00
Ole Halverson.....	126	10	5 00
Thomas Craigle.....	123	20	10 00
Edward Kagle.....	131	10	5 00
John Muloney.....	133	10	5 00
Undrawn Stock.....		811	405 50

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY.

San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

Pacific Iron Works,

San Francisco, Aug. 23, 1867.

BLAKE'S QUARTZ BREAKER!
PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077

Sv15r

SAN FRANCISCO.

DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

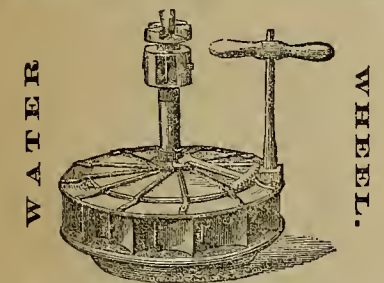
THE ATTENTION OF QUARTZ, HYDRAULIC AND Placer Miners, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a clean and simple apparatus by which the finest *free gold* can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address

Dr. J. B. BEERS, San Francisco.

11v15 5m

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALLED AND UNRIVALED IN the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REFERENCES.—E. Stooten, Folsom; O. Simmons, Oakland (Mill at Clear Lake); Morgan Coville, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular, to

KNAPP & GRANT,

Agents for California.

26v13-1yq

310 Washington street, San Francisco

NOTICE TO MERCHANTS
AND
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working, as goods require no slinging or lashing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any tugging or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.

By Joseph Moore, President.

JOSEPH MOORE.

21v15 1f

HUNGERFORD'S

Improved Concentrators.

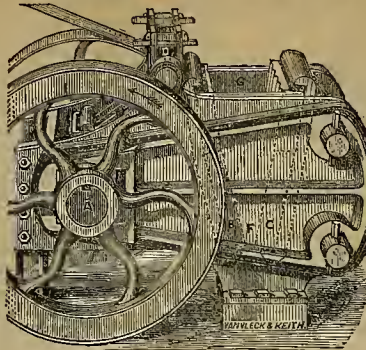
MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 1f

MOROAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for breaking or Spalling Quartz, or other Rock, possessing as it does simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertiser is enabled to offer these machines to the public at the following low terms:

No. 1.—Or 6 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, only.....\$600
No. 2.—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour.....850
No. 3.—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, L, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco. The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866.
JAMES BRODIE, Esq., San Francisco.—My Dear Sir: I beg to pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which is entirely met my expectations; and I have no hesitation in recommending it to all who wish to acquire a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,

R. P. JOHNSON,

Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than two months. If persons desirous of procuring one, without having recourse to legal proceedings, for past infringements or designs of receiving Letters of License for the limited period named, are requested to address as below.

A drawing and full description of this machine, will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or CHARLES R. BAKER, Express Building, 402 Montgomery street, San Francisco.

12v13 1f

C. F. TRAVIS,

Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

PORTABLE

MILLS.

—

Agent for

Dufour & Co's

Celebrated



DUTCH ANCHOR BOLTING CLOTHS.
Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt; Mill-Stones Balanced with Fellenbaum's Patent Balance, of which I am sole proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS, 109 Mission street, San Francisco.

5v15 1f

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYCE, at 433 Brannan street, between Third and Fourth. Refers to Elson Bros., Pioneer Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

6v15 5m

PATTINSON'S
HURDY-GURDY WATER-WHEEL.

The Inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "burdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

7v15 4y

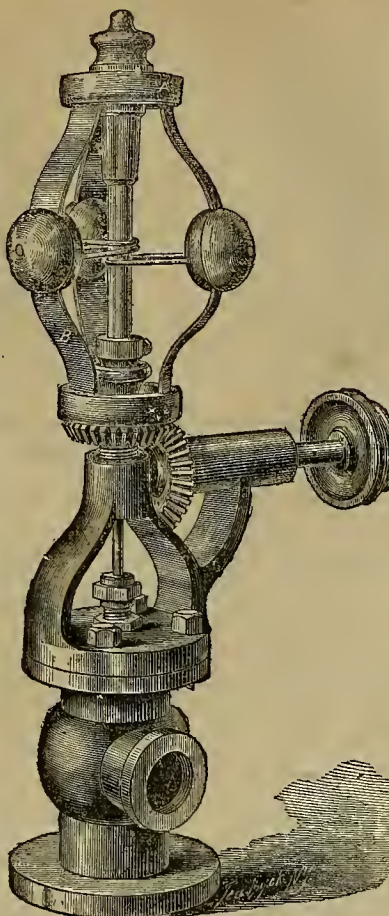
THOMAS PATTINSON

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.

PARTIES WISHING TO PURCHASE WILL SAVE 50 per cent by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco.

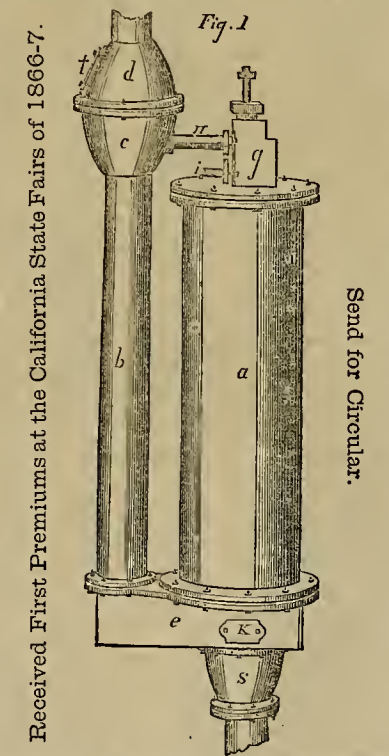
24v15 3m

PICKERING'S
ENGINE REGULATOR.

Warranted the Best in Existence.

Cheap and easy to attach to any Engine, old or new. Send for a Circular, to DAVID STODART, 114 Beale street, San Francisco.

12v15 2am1q

WILCOX'S
Patent Steam Water Lifter.

Received First Premiums at the California State Fairs of 1866-7.

Send for Circular.

A Steam Pump without Engine, Piston, Plunger or Packing, using both the expansive and exhaust power of steam, and doing more work with the same amount of fuel, than any other Pump driven by steam power. It is applicable to either lighter heavy work, whether for mining, irrigation, or other purposes. It has been used of various capacities, from 50 to 40,000 gallons per hour, and can be made of any size required. It is not injured by sandy or muddy water. In light of lift it is limited only by the strength of the boiler used.

For further information, apply to M. & A. WILCOX, Proprietors, No. 19 Front Street, between I and J Sts., Sacramento, Cal.

25v15 2am3at

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,

8v13-1y Stove Store, No. 125 Clay street, below Davis.

CAUSE OF KEROSENE LAMP EXPLOSIONS.

Kerosene accidents occur from two causes: first, imperfect manufacture of the article; second, adulterations. But a lamp may be filled with bad kerosene, or with the vapor even, and in no possible way can it explode, unless atmospheric air has somehow got mixed with the vapor. A lamp, therefore, full, or nearly full of the liquid, is safe; and also one full of pure, warm vapor, is safe. Explosions generally occur when the lamp is first lighted without being filled, and also late in the evening, when the fluid is nearly exhausted. The reason of this will readily be seen. In using imperfect or adulterated kerosene, the space above the line of oil is always filled with vapor, and so long as it is warm and rising freely, no air can reach it, and it is safe. At bedtime, when the family retire, the light is extinguished; the lamp cools, a portion of the vapor is condensed; this creates a partial vacuum in the space, which is instantly filled with air. The mixture is now more or less explosive; and when, upon the next evening, the lamp is relighted without replenishing with oil, as is often done, an explosion is liable to take place. Late in the evening, when the oil is nearly consumed, and the space above filled with vapor, the lamp cannot explode so long as it remains at rest upon the table. But take it in hand, agitate it, carry it into a cool room, the vapor is cooled, air passes in, and the vapor becomes explosive. We hear much said about dangerous gases being formed in lamps, but this is an error. The whole hazard comes from air-mixed vapor.

But how can we be positively assured of safety in the use of kerosene? How can we know the character of the article offered us by dealers? If consumers are willing to be put to a little trouble, a simple experiment will determine the safety of the kerosene they purchase. Fill a pint bowl two-thirds full of boiling water, and into it put a common metallic thermometer. The temperature will run up to over 200°. By gradually adding cold water, bring down the temperature of the water to 110°, and then pour into the bowl a spoonful of the kerosene, and apply a lighted match. If it takes fire, the article should be rejected as dangerous; if not, it may be used with a confident feeling of its safety.—Exchange.

SPEED OF RAILWAYS.—Dr. Lardner adopts some ingenious arguments or rather illustrations, to render familiar the extraordinary velocity with which express trains move. The Great Western Express to Exeter, travels at the rate of forty-three miles an hour, including stoppages, or fifty-one miles an hour without including stoppages; to attain this rate a speed of sixty miles an hour is adopted midway between some of the stations; on certain experimental trips seventy miles an hour has been reached. A speed of seventy-five miles an hour is about equivalent to thirty-five yards a second, or thirty-five yards between two beats of a common clock; all objects near the eye of a passenger traveling at this rate of will pass by his eye in the thirty-fifth part of a second; and if thirty-five stakes were erected at the side of the road, a yard asunder, they would not be distinguishable one from another; if painted red, they would appear collectively as a continuous flash of red color. If two trains with this speed pass each other, the relative velocity would be seventy yards per second; and if one of the trains were seventy yards long, it would flash by in a single second. Supposing the locomotive which draws such a train to have driving wheels seven feet in diameter, these wheels will revolve five times in a second; the piston moves along in the cylinder ten times in a second—but as there are two cylinders which work alternately, there are really twenty puffs or escapes of steam in a second. The locomotive can be heard to "cough" when moving slowly, the cough being occasioned by the abrupt emission of waste steam up the chimney; but twenty coughs per second cannot be separated by the ear, their individuality becoming lost. Such a locomotive speed is equal to nearly one-fourth that of a cannon ball; and the momentum of the whole train, moving at such a speed, would be nearly equivalent to the aggregate force of a number of cannon balls, equal to one-fourth the weight of the train. That "smash" should follow a collision, is no subject for marvel, if a train moving at such a speed—or anything like such speed—should meet with any obstacle in its progress.—Dodd's Curiosities of Industry.

PAPER WATER PAILS AND BASINS.—The Papier Maché Company on Long Island, make articles of this material which can be used for boiling water, or exposed to severe cold, without injury. They will not rot or rust, will give no taste to their contents, and will keep the said contents cool.

OREGON LAUREL FOR SHIP-BUILDING.—The *Bulletin* gives a letter recently received from George M. Scudder, Ellensburg, Oregon, in reference to Oregon timber suitable for ship building. We quote the portion which speaks of laurel: "Some four or five years ago I had got out at this place (Rogue River) for the navy yard at Mare Island, several thousand feet of laurel—or as it is universally called in Oregon, "myrtle." Most of this would average twenty or more inches squared, in thickness, and was in length from about eighteen to thirty feet; and could have been got out longer, but that the schooner (*Florence Walton*) was not of sufficient capacity; some of the sticks were good crooks, but mostly straight. Several pieces squared twenty-two inches; one, I think, about thirty-two—at least, such can be had. In loading, one of the timbers shipped out of the slings, and being nearly as heavy as lead, sunk to the bottom, and there remained for three years, when ultimately a heavy freshet threw it out upon the river bank. Having been in salt water, worms made an attempt on it, but succeeded only with a slight strip of the sap, the main portion evidently resisting their attacks.

But this is the point I wish to call to your attention. If opportunity occurs I intend sending a part of this to San Francisco. The timber thus seasoned is very solid; my men made a mast from it and daily use it, which is as solid as bone. Laurel or myrtle timber grows plentifully on Rogue River, on the Coquille, Coosue Bay, Umpqua, etc. Growing on river bottoms mostly, considerable of it has been cut off and burned "to clear the land." It is a pity that this, the most valuable timber for ship-building, in my opinion, on this coast, should not be better known. It should be cut—this is a great point—from November to March or thereabouts, and if afterwards "docked," would fully equal any "live oak;" in fact, if, as I think, it will resist the worm, why should it not be superior to any other timber?"

CARD.

THE UNDESIGNED, SINCE DISPOSING OF HIS Gallery on Montgomery street, has seldom been in the street without being asked where the best photographs were taken. Now, for the benefit of his friends and the public generally, he would recommend them to go to the COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY, No. 521 Kearny street, now owned and occupied by Messrs. HALSEY & SCRIPTURE. Both of these gentlemen are professional photographic artists—one of them having been in the business more than twenty years—and cannot be surpassed by any one in the State.

Persons wishing photographs taken will do well to give them a call. The above named gallery is one of the finest and most convenient in San Francisco, it being situated on the second floor, and its proprietors are the most accommodating and gentlemanly men in the business.

N. B.—Prices as low as at any other Gallery in the city. Solar Printing for the Trade.

Also Stereoscopic Views of California Scenery, at wholesale and retail, at the Cosmopolitan Art and Photographic Gallery, No. 521 Kearny street.

HALSEY & SCRIPTURE, Proprietors.

HAYWARD & COLEMAN,

IMPORTERS AND REFINERS

—OF—

Illuminating, Lubricating,

—AND—

PAINT OILS!

CONSISTING OF

KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS', NEATFOOT, BOILED AND RAW LINSEED, CASTOR AND CHINA NUT.

—ALSO—

SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of MILL OWNERS and ENGINEERS to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.

A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!

An elegant and complete assortment on hand. 19v13-3m 414 Front street, San Francisco.

To Mine Owners.

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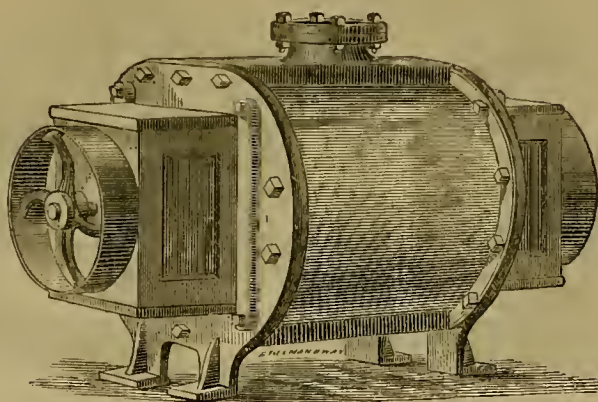
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Persons wishing Mechanical Drawings can obtain the services of competent draughtsmen, by applying to this office.

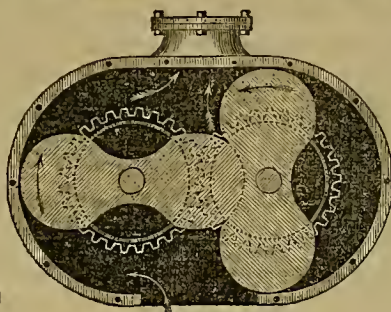
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Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



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Foundry,
Mining
and
Steamships.



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BLAKE'S PATENT QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a release of the Patent, bearing date January 9th, 1866

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other materials crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages. BLAKE & TYLER, Agents for the Pacific Coast. 14v14f

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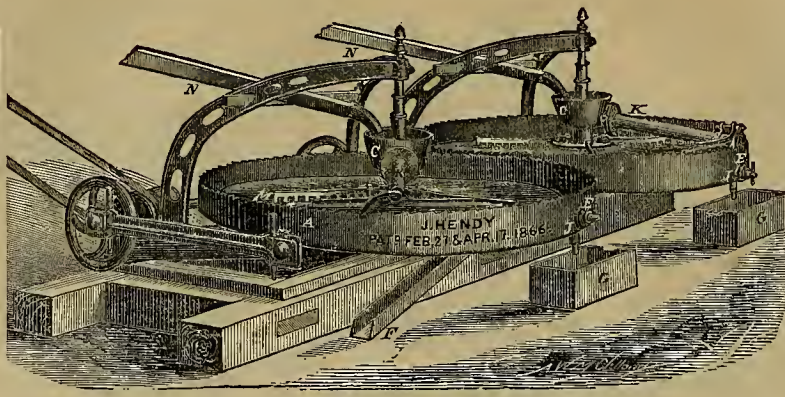
The American Spring Bed.

THIS BED, NOW SO POPULAR IN THE EASTERN and Western States, was patented August, 1866. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines elegance, with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 29 Post street, San Francisco. 8v16-3m

"The Excellent"

Will not repair broken limbs nor leaky roofs; but it will quiet the nervous and brace up the weak. It will give more comfort to those suffering from dyspepsia or indigestion than any preparation you ever tasted or heard of. The first physicians use it, and it is made by **BARRY & PATTEN,** 413 Montgomery street, San Francisco. 8v16-3m

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES.

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators or pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets.
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (7 Concentrators).....Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (6 Concentrators).....Grass Valley, Nevada County.
NORRIDGEWOCK MILL (2 Concentrators).....Grass Valley, Nevada County.
VALENTINE & CO. Commercial Mill (3 Concentrators).....Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....Humboldt County, Nevada.
ROBINSON & McALLISTER M & M. CO. (3 Concentrators) Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....Calaveras County.
MIDAS MILL CO. (4 Concentrators).....Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....Virginia City, Nevada.
VULTURE CO. (3 Concentrators).....Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....New York.
GUADALUPE & SACRAMENTO G. & S. M. CO......Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....Sonora, Mexico.
B. F. BROWN (1 Concentrator).....Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly, **LOUIS JANIN, Jr.**

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,
Union Foundry, San Francisco.

W. T. GARRATT, City BRASS AND BELL FOUNDER.



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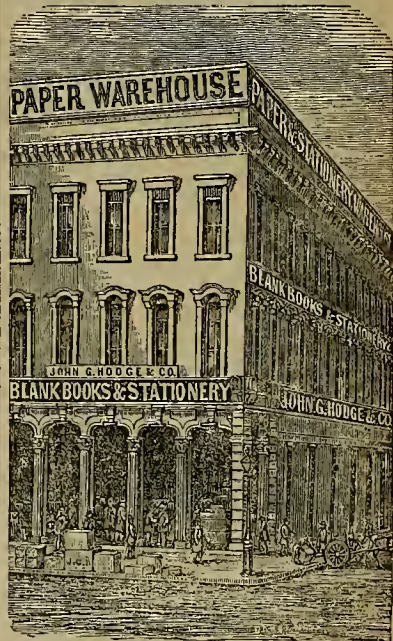
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Of all kinds of Ores, and the

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16v14f SAN FRANCISCO.

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SAN FRANCISCO, SATURDAY, FEBRUARY 29, 1868.

{ VOLUME XVI.
Number 9.

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MECHANICAL MISCELLANY.—
Railway Cars; Manufacture of Iron; Titanic Slew; Extraordinary Hard Steel from Pig Iron; Steel for Iron for Steam Boilers; Galvanizing Iron.
SCIENTIFIC MISCELLANY.—
Electrical; New Galvanic Battery; Heat Without Coal; New Mode of Intensifying Light; Electric Acid; Spectra of Flame; Self-Registering Barometer.
MINING SUMMARY.—Comprising late intelligence from the various counties and districts in California, Arizona, Colorado, Oacotah, Montana, Nevada, New Mexico and Oregon.
New Patents and Inventions.
San Francisco Weekly Stock Circular.
Stock Prices—Bid and Asked.
San Francisco Market Rates.
San Francisco Metal Market.

of geared wheels having a uniform number of teeth, so that when one rotates the other must rotate at the same velocity. E, E' are pistons attached to the shafts, C, C' (one of which is shown in perspective in Fig. 3), and which fit snugly one to each of the bores, a, a', of the cylinder. These pistons may be cast in the same piece with their disks, or they may be otherwise firmly secured to it, and the shaft, C, C', made of wrought iron similar to any machine shaft. The forms of the pistons are nearly half of a ring, the outer arc fitting to its respective bore and the inner one to the hub (as seen in Figs. 2 and 3), and the face, which is

back of its respective bore in the cylinder. The disks also fit snugly against the ends of the hubs, c, c'. The sides of the hubs nearest each other are recessed for the passage

vents the passage of steam between the hub and piston.

B is the induction pipe communicating with the cylinder at the upper junction of the two bores, a, a', and D is the eduction opening communication with the cylinder at the lower junction of the two bores.

To operate the engine as a motor, the steam is admitted to the cylinders between the pistons by opening the eduction pipe, B, and operates on the ends of one and the other pistons alternately, the outer circumferential face operating as an abutment, while the motive force acts upon an end of the other one. Suppose the pistons are in the position as shown in Fig. 2, the steam is first entering at the eduction pipe, and acts upon the piston, E and E', acts as an abutment, and drives E in the direction of the arrow shown upon it, and the gearing attached to it drives E' in the opposite direction, as indicated by its arrow. This action continues until the forward end of the piston, E, passes the induction opening, when the steam acts upon the other piston, E', and produces its continuous revolution, while the continued revolution of E, which now acts as an abutment, is produced by the gearing. The steam acts in this manner upon each piston during one-half of a revolution, thus acting upon one or the other throughout the whole revolution, and escaping in front of the piston by the eduction opening, D, as the spaces in front of the pistons are alternately brought into communication with the opening in their revolution.

Quite a number of engines upon this plan have already been manufactured, of different degrees of power, and where they have been tried have given good and satisfactory results as a motor, and have a greater economy of fuel and steam than the horizontal reciprocating engine.

One of these engines, of a twelve-horse power, and a pump made upon the same principle, was exhibited at the recent Paris Exposition.

This invention was patented in the United States April 10, 1866, and subsequently in Europe, and first illustrated in the *American Artisan* of February 20th, 1867, to which paper we are indebted for the above illustration and description. The inventor is Henry J. Behrens, of the firm of Henry C. Dart & Co., of No. 5½ Pine street, New York, and the patents are owned by that firm, from whom any further information desired may be had.

ASBESTOS—INFORMATION WANTED.—Any person who may know of a locality on this coast where large quantities of asbestos can be readily obtained, and delivered at a reasonably low price, at some point of steam navigation, may possibly profit by communicating the fact to this office. Quantity rather than quality is the object desired. If used at all for the purpose proposed, many tons may be required monthly.

SWEETWATER MINES.—Wells, Fargo & Co. are arranging to run a line of stages to the Sweetwater mines.

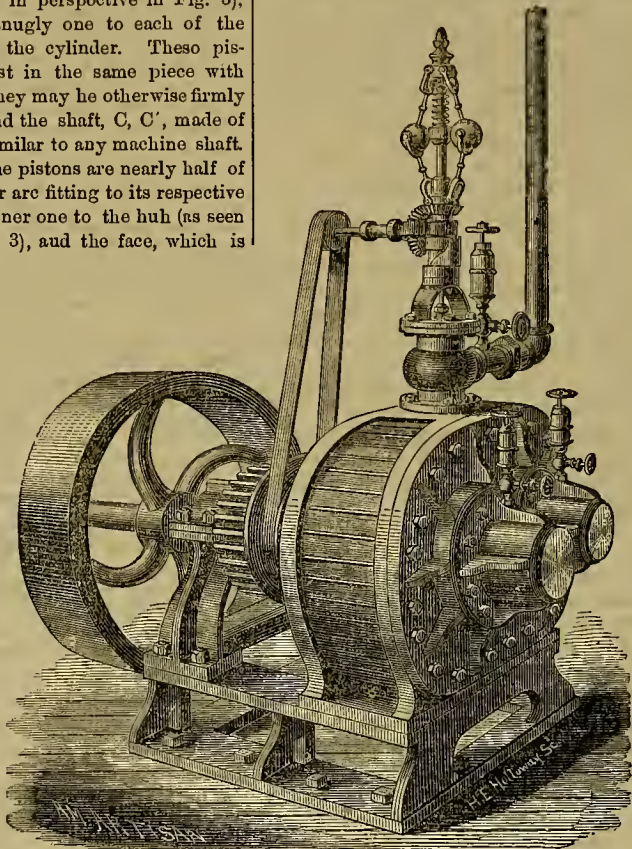
Behren's Patent Rotary Engine.

This engine is designed more especially for use as a motor, in which case it may be driven by steam, water, or other fluid; but by having power properly applied to it externally, it may be used as a pump, and this application will be illustrated in a future number of this journal. The pistons are attached to two parallel shafts, and geared together, so as to rotate in opposite directions at the same velocity, and are of the form of segments of rings, made concentric with their respective shafts. Their outer arc-formed surfaces are fitted to and rotate within two parallel laterally communicating bores in the same cylinder or casing, and their inner arc-formed surfaces are fitted to and rotate around two stationary hubs concentric with their respective shafts and bores of the cylinder. The axes of the shaft and their respective bores are situated at such distance apart, and the fixed hubs are so recessed in concave arc-form, that the outer arc-formed face of the piston of one shaft fits the recess in the fixed hub which surrounds the other shaft in such manner as to prevent the steam or water from passing between the piston of either cylinder and the hub of the opposite one. The induction and eduction pipes are arranged in opposite positions where the two bores of the cylinder meet.

In the operation of the engine as a steam motor, the steam acts upon the piston of each shaft alternately, while the piston not operated upon serves as an abutment.

Fig. 1 is a perspective view of the engine, and Figs. 2 and 3 sections of the same showing internal arrangement. In Fig. 4, a perspective view of one of the pistons with its shaft is given. In Figs. 2 and 3, A is the cylinder or casing, having parallel cylindrical bores, a, a', the axes of which are a distance apart equal to about two-thirds of the diameter of the bores themselves, so that the two bores intersect each other, and have a lateral communication; c, c' are fixed cylindrical hubs, which are concentric with their respective bores. The heads of the cylinder are bored through concentrically with the bores, a, a', for the passage of the two parallel piston shafts, C, C', which also pass through and fit concentric bores in the hubs, c, c'. The two shafts, C, C', are geared together by a pair

perpendicular with the planes of rotation of its disk, fitting to work against the face of the disk of the other piston and to the



BEHREN'S PATENT ROTARY ENGINE.

Fig 2

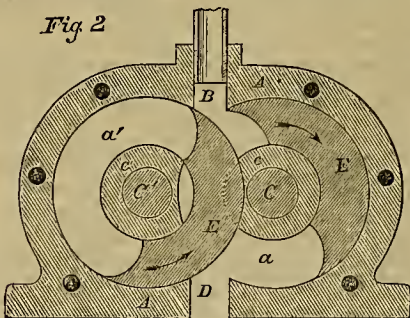
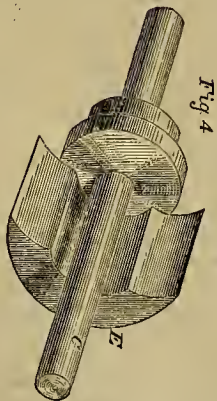
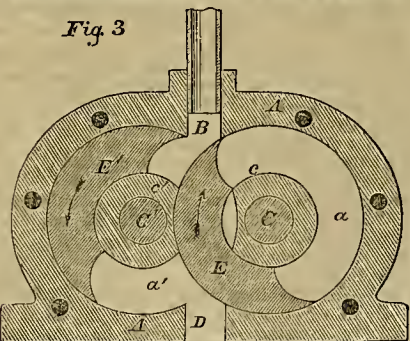


Fig 3



Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The "Pictured Rocks."

BY PROF. ROWLANDSON, F. G. S. L.

Within even a very limited period, the singular landscape-like appearances presented by several sections of the sand-like rock, now on exhibition in this city, would be placed to the account of one of Nature's freaks. In what follows, an endeavor will be made to explain the phenomena. Before doing so, however, the writer wishes it to be understood that he is neither a botanist or microscopist, and that any reasoning which may follow, based on those sciences, consists in inferences drawn from the observations of others. It will perhaps also be well to remark, that my original impression, as to the singular marking on the sandstone under notice, was made prior to seeing Mr. Fleming's specimens, after several times inspecting a small slab in the cabinet of specimens in the *Alta California* office, on the lower shelf of which is also to be seen a sample of diatomaceous rock, alike, but somewhat coarser in character to the article sold in California as a polishing powder, under the name of electro-silicon; a mineral resembling which, is similarly used in Europe under the name of tripoli. The rock noticed as employed for the purpose of polishing metals, has the appearance of precipitated chalk, sometimes perfectly white, at others, inclining to various shades of buff. The reason for writing the above particulars will afterwards appear.

I have reason to suppose from an explanation made by Mr. Ewer, and referred to editorially in last week's *MINING PRESS*, that the specimen which I first saw, and from which I drew my first inferences, is placed the reverse of its natural position, as the larger part of the slabs now exhibited by Mr. Fleming are so placed, as any visitor will easily perceive on being informed, that the narrow margin of steeatitic bed rock, which is now placed uppermost in most of the slabs exhibited, formed in fact the bed rock on which was superimposed the sands and overlying figures. Examined in the reverse of this position, it will be found that the moss-like appearances and figures, in place of growing and branching upwards, have done so in a downward direction. The downward mode of development just mentioned, is the reverse of our conception of plant-like growth, arising from the fact, which we unwarily overlook, that with all plants some portion, and with some nearly one-half the entirety is developed downwards. Whilst others, as the truffle, for instance, are wholly developed underground. The last instance is introduced with the object of showing to those unacquainted with such subjects, that the lower orders of plant growth can proceed in modes greatly diversified from those which have to be indispensably associated with the growth of *phenogams*, (flowering plants). Another feature connected with the growth and reproduction of *fungi*, to which probably the diatoms are most nearly allied, is their sporadic mode of development, as is well known to pertain particularly to varieties of *botrytes*, as seen in the so-called vine disease and potato-rot.

Possessed of similar sporadic properties, we cannot therefore be surprised to find that where conditions favorable for their propagation exist, the diatoms may be found branching out into something akin to coral-forms, and like corals, each aggregation composed of a vast multitude of separate living organisms. For it must be understood, that the moss-like figures presented in these pictured rocks, are not single plants, but are congeries of innumerable microscopically minute plants, just as the smut in wheat consists of innumerable minute *fungi*. The view just stated is countenanced by the circumstance, that on some slabs, where the sandy particles are coarser than the average, there has probably existed minute pipe-like hollows, subsequently filled up by black patches of diatoms, which, though not lying so closely together as where the more moss-like appearances are to be seen, possess a more massive character, some being the diameter of a grain of mustard. The ramose character of these microscopic organisms is indicated by the fact, that when the sections are cut perpendicularly, their arborescent characteristics becomes plainly apparent, just as

a hushy shrub would appear if bisected through its center, branches being thrown out almost immediately above a very short trunk, the trunk, as it may be termed, being fixed amidst a dark colored layer of the remains of similar diatoms; in fact, the ramose developments presenting a moss-like appearance are merely the downward extension in growth of the ribbon-like and superior layer of pre-existing diatoms. On inspecting the rocks exhibited, since the preceding was written, for the purpose of more minutely examining the phenomena associated with the reversed character in the appearance of the growth of these moss-like representations, I found that all indicated a downward growth where placed amidst coarsish sand, the upward, and that of more stunted development, only being observed in layers found amidst that variety of remains of silicious diatoms already alluded to as tripoli, etc. The inference I drew from the last named fact is, that the dark, carbonaceous-looking diatoms, forming the so often named mossy appearances, belong to a species that luxuriate only in very cold water, in fact, as low and below the freezing point; while the silicious diatoms, the remains of which constitute a favorite material for polishing metals, belong to a variety which is most probably best developed in thermal, or warm water. Thermal water passing over sands heretofore numerously inhabited by what may be termed cold diatoms, would necessarily become dwarfed, as we see is the case on its accession. Some facts on which the above theory is based, will be given next week.

[Written for the Mining and Scientific Press.]

Letter from Idaho.

ROCKY BAR, Alturas County, }
Idaho Terr., Feb. 5, 1868.

EDITORS PRESS:—Your issue of Jan 18th, received to-day, contains the first notice I have seen in your paper in regard to the mines in this region. I refer to an editorial notice headed "Idaho ore." You say, "such ore would do credit to any mine, in any country, and but for the distance which separates these mines from some point of supply, making the cost of transportation so great, they would be ranked among the best ever discovered."

Now, our remote distance is an objection; but it is more than counterbalanced by our extraordinary advantages in the shape of wood, water, and wide, rich ledges. This objection of distance will soon be removed by the completion of the Pacific Railroad, even if the Idaho branch is never built. Even now, freight from San Francisco can be laid down here for eleven cents. It adds but a few thousand dollars additional cost to a quartz mill in the first place, and when once erected the cost in working will be but a few dollars more per ton, while our quartz is superior in richness. Idaho now raises a large portion of her produce, and in two years will have produce in abundance to spare; so that all we will have to buy outside of our limits will be groceries and clothing. We shall soon be able to live here as cheaply as in California, and consequently work our quartz as cheaply as can be done in your State. When that can be done, let California and Nevada look to their laurels as the great gold and silver producing States.

Idaho quartz mines have been terribly abused and slandered; nearly every company has been a disastrous failure, and hence our quartz mines have been pronounced worthless; but the truth is being gradually known, and people are beginning to see and appreciate that the failures of the many companies rest not with Idaho, or Idaho's quartz ledges; but with the companies themselves, and their bad management and thieving, rascally superintendents. We have reached the lowest descent, and I predict that from this time on, Idaho quartz stock will rise, and keep rising; in fact, it is already on the rise. Witness, Owyhee! A year ago the depression there was terrible; even the Poorman was considered a failure;—not a mill was running, and hope was almost entirely crushed out. Now every mill is running, and doing splendidly, and for December Wells, Fargo & Co. shipped \$105,000 worth of bullion—mere nothing to what will yet be shipped from that camp.

Our mines in this county are not inferior, but are superior to those of Owyhee, with the additional advantage of an abundance of wood and water, and a better climate. We have hundreds of ledges here, which, if in California, would sell, with their present development, for enormous sums, and then make the buyers immense fortunes. But we

must have money to develop these ledges, put mills on them, etc., and we naturally look for aid to California; and if you will but come to our assistance, we will repay you a hundred fold. Come and examine for yourselves. Our ledges will bear personal examination and inspection. California capitalists and quartz operators are throwing off on themselves by treating Idaho with so much disdain and neglect. They are losing magnificent chances for investment, and they will soon realize their short-sightedness. There are now several persons from this county in San Francisco, seeking among their friends for working capital for their ledges, and they all deserve success. Messrs. Stevens, Taylor & Taggart have at least two No. 1 ledges—the Grey Eagle and Lucy. I have personally inspected the Grey Eagle; a tunnel taps the ledge ninety-seven feet below the surface, and there is a shaft from the surface ninety-seven feet deep on the side of the ledge, showing a splendid mass of quartz all the way down, and it is over fifteen feet wide at bottom of shaft—prospecting splendidly in both gold and silver. If they succeed in getting a mill and working capital, their fortunes are made. A Mr. Davis is seeking capital for a ledge called the Tahoma, a No. 1 ledge, and he deserves success. Mr. John L. Tilman is also in your city for the same purpose. Mr. T. has several ledges, but the Charlotte Shafer and the Silver Tide I know to be good, and will bear the most rigid inspection. There is no humbug about Mr. Tilden, and he deserves attention. All the above ledges are in the Yuha District, some sixteen miles from here. There may be others in your city, seeking aid. I mentioned the above because I knew they were in San Francisco, and because they are all good men, and have the very best of ledges, and for that reason they have gone where good quartz can be appreciated. Being upon the Pacific slope, and thoroughly identified with its interests, we naturally look for aid from California, and would prefer California capital and men, for they better understand the business, and cannot but help achieve complete successes. I sincerely hope that California capital will begin to flow in the rich channels of investment offered here, and that hereafter our mining region will deserve some notice in your valuable paper.

ALTURAS.

Salt Spring Valley and the Adjacent Region in Calaveras County.

(Read before the California Academy of Natural Sciences, December 16, 1867, by W. A. GOODRICH, Ph. B., Civil and Mining Engineer.)

[Concluded from Page 103.]

The gold and silver from these formations, which have recently attracted so much attention, and have become the object of extensive mining operations at Quail Hill, seem to be distributed at the latter place, to a greater or less extent, throughout the whole mass of the decomposed rock. The surface earth of the hill, also, everywhere contains gold, which may be discovered by washing it in the pan; but this ceases to be the case on the hillsides as soon as the limits of the decomposed rock are passed. Some of the gold, as stated by Prof. Silliman in his communication to the California Academy, already referred to, is quite coarse; but much of it is exceedingly fine and difficult to save in the mill. It is a noticeable fact in the distribution of the precious metals at Quail Hill, that the precious ores and the material in their vicinity have hitherto been found to be always rich in gold and silver, and to contain chiefly if not exclusively the coarsest gold.

The distribution of the gold at Quail Hill is not uniform, the more slaty and ferruginous portion of the decomposed rock, being generally the richest ore, while the compact porphyritic kaolin contains but traces of gold, if any, and some of the other and more compact rock is comparatively poor. The original distribution of the sulphurets here seems also to have followed approximately the same law,—the kaolin containing in general but little trace of their existence, while the more slaty rock is often full of their cavities. Hematite, as well as the hydrated sesquioxide of iron, occurs here in small quantities; and a curious point in this connection is the fact that, while much of the best ore is very highly charged with the hydrated sesquioxide, the hematite has been found hitherto to contain little or no gold. The origin of the decomposed porphyry at Quail Hill is a point of much in-

terest, and it may be a question whether it is not the remnant of an intrusive igneous dyke. The arguments in favor of this supposition consist in the entire dissimilarity in character and structure between it and the surrounding material, as well as in the rarity of porphyry in the region round about. In fact I have nowhere else in this portion of the country seen anything deserving of the name, while the whole texture and appearance of this mass at Quail Hill are precisely such as would have resulted from the decomposition, in place of a true feldspathic porphyry. But however strongly these facts may seem to argue in favor of an igneous origin, it is not easy to reconcile such a supposition with its mode of occurrence here. Other masses of similar character may exist within the hill; but so far as existing developments have cut or uncovered the one of which I speak, the indications are that it is irregular in outline, quite limited in extent, and of approximate lenticular shape. Moreover, in certain places it seems to pass gradually into the eastern country rock, without any distinct line of demarcation, the change in the texture of the rock being even more gradual than the passage from the decomposed to undecomposed material. At certain points but a few feet from the eastern "wall" the kaolin is as perfectly porphyritic in its texture and appearance as in any portion of the mass, while between the two is every grade of passage from the one to the other—the country rock being neither distinctly porphyritic in texture, nor chiefly feldspathic in composition. I am strongly inclined to think, therefore, in spite of its peculiar and distinctive character, that this porphyritic mass is but a local result of the metamorphism of sedimentary strata, which, in many portions of this region, seems to have been as varied in character as it has been high in degree.

The degradation of such formations as this at Quail Hill, has undoubtedly furnished some of the placer gold of the region; but the evidence does not yet by any means justify us in supposing that it has furnished the whole of it. Gopher Gulch, which runs at the foot of Quail Hill, and its branches, for a mile above this point, or nearly to the summit of the Gopher Range, and hundreds of feet above the level of the Quail Hill formation, were in early days rich in placer gold, much of which was very coarse. Other gulches in the vicinity have also furnished more or less gold high up towards the summit of the range. Moreover, the quartz veins which here and there occur in the hard metamorphic rock, are known, some of them at least, to contain gold, and such have probably played their part in the formation of the placers.

I have already mentioned the fact of the prominent association of the precious metals with ores of copper at the Quail Hill mine; but this fact derives still further interest from what follows. As far as my observations have extended in Calaveras County, and also at Whisky Hill in Placer County, wherever gold and silver have yet been found in paying quantities in the decomposed rock formation, there also, or close at hand, are found the oxidized ores of copper, carbonates and silicates; and conversely, I have nowhere seen oxidized ores of copper in this decomposed rock which were not, comparatively at least, rich in gold and silver. It is true that sufficient developments have not yet been made to enable us to state whether this is the general fact, or not. It is possible that the association of these ores may be to a certain extent accidental; but it is not unlikely that it may be otherwise;—and at all events this is a point well worthy of attention and further investigation.

As this finishes my remarks for the present upon the "calico rock" formation, I will close by simply mentioning a point relating to the lower country of Calaveras County, that I have not yet seen publicly noticed elsewhere. The low, rolling hills which form the eastern border of the San Joaquin plain between the Stanislaus and Calaveras rivers, contain extensive beds of horizontally stratified material, which is probably sedimentary-volcanic in origin. The color of these beds is usually varying shades of gray. They contain no pebbles, so far as I have seen; they generally crumble easily and resemble in appearance a friable sandstone. But their grain or grit, which is pretty fine, is also quite clean and sharp as well as hard, and rough-polishes rapidly the hardest steel when rubbed upon it.

These beds are of considerable thickness, and cover many square miles of country. Their stratification has evidently not been disturbed since they were deposited, though they have been largely eroded. The frequent flat tops of the hills, and the level benches, which these beds have produced along their sides, by irregularities of wear, impart a peculiar aspect to the scenery.

Mechanical.

RAILWAY CARS.—The recent terrible railway accidents have attracted very general attention to the study of means for the prevention of such casualties. To accomplish this end improvements are proposed both in the mode of constructing and in the manner in which they are connected when in motion upon the road. It has been observed that in England the cars of a train are attached to each other by means of rigid braces, which are firmly screwed up, so that the train is almost one continuous car. It is thought that this arrangement gives both steadiness and security. It has been suggested that the framework of a car should be constructed of iron tubes—the form in which the greatest strength may be obtained with the least weight. It is also proposed that the covering of the car should consist of very thin boiler iron. Competent engineers estimate that such a car can be constructed at about the same cost as the ordinary wooden car, while it will be greatly reduced in weight, and would last three or four times as long. In case of accident, there would be no danger from splinters which, in case of collision, etc., are found to be most fruitful sources of injury to life and limb. The cars can also be heated by hot water through the iron tubes which will constitute the framework of the superstructure, by which the terrible danger from fire will be completely averted. The public would hail with gratitude any improvements in this direction, that would give greater security to railroad traveling; and railroad managers should leave no expedient untried which gives reasonable hopes of improvement in this direction. Their pecuniary interest, as well as the common cause of humanity, earnestly demands such improvement.

MANUFACTURE OF IRON.—From a paper read by Mr. Fredrick Smith, and recently published in the Transactions of the Institution of Mechanical Engineers, we extract the following notice of the processes gone through in producing the different kinds of iron made at the Rond Oak Works, Eng., and known as "common," "best," and "best best,"—"Common" iron is made from puddle bars from hot-blast mine pig, cut, piled, and heated with best coal for about an hour and a half in one of the bar mill furnaces, and rolled in the bar mill to the section required. "Best" iron is made from a mixture of cold and hot blast pigs, but the top and bottom of the pile are of puddled iron that has been worked over twice at the hammer and forge rolls, so that all "best" iron is worked over at least twice, while the upper and lower parts of the pile are worked over at least three times. "Best best" iron also consists of a mixture of cold and hot blast pig, and is treated nearly the same as "best," only that the whole pile is worked over thrice at the hammer and forge rolls."

TITANIC STEEL.—It would appear from the following paragraph, which we clip from *Engineering*, that Mr. Mushet is still engaged in his efforts towards perfecting the manufacture of titanic steel and iron:

The influence of titanium upon steel and steel manufacture is comparatively little known as yet, but to judge from the records of Dr. Fairbairn's tests of steel, laid before the British Association in the present year, the steel of the Titanic Steel and Iron Company seems to be distinguished by an extraordinary amount of cohesive strength. The specimens of titanic steel tested by transverse strains have given some of the highest figures in Dr. Fairbairn's table, both with regard to the value of the modulus of elasticity, and to the value of the unit of working strength. We do not know whether it be the titanium, but we are quite sure it is Mr. Mushet's great skill as a metallurgist to which such results are due.

The screw propeller is probably as old as the windmill, and a windmill of the construction now usually employed is shown in the egypto-seventh proposition of Hero's "Spiritalia," a work written 140 years before the Christian era.

EXTREMELY HARD STEEL FROM PIG IRON. The London *Mining Journal* refers to an improved discovery which is being matured by two Glasgow gentlemen, a brass-founder and a civil engineer, by which they have succeeded in obtaining steel of extraordinary hardness from pig iron. This adamantine metal, so far as has yet been made public, is produced by placing ordinary pig iron in a crucible, and when brought into a state of thorough fusion certain chemicals are added, which seem to have the double effect of purifying and hardening the metal, when it is run into ordinary sand molds. For the manufacture of files, turning tools, etc., it is expected to be of great value. The editor of the *Journal* had an opportunity of examining a turning instrument made of this singular metal, which has been well used in the turning shop of Messrs. Napier, of Glasgow, and it left the lathe with as fine an edge as when it commenced. Another tool, tried in another shop, is reported to have been kept turning till it acquired a blue heat without receiving the slightest injury. This metal requires no tempering, and when used for turning, the speed of the engine may be greatly accelerated without fraying its edge. The metal has a compact, silvery appearance, but it is too brittle to weld. With regard to what its cost may ultimately be, nothing definite is known; but as yet it is too expensive to be of general commercial utility. This and other evils the inventors are studying to overcome, and they entertain hopes of succeeding. Their invention is protected; and in its present immaturity the public cannot do more than wish them success.

STEEL OR IRON FOR STEAM BOILERS.—A series of comparative experiments designed to test the relative evaporating power of iron and steel boilers was recently made at Hagen, in Prussia, which has elicited considerable interest and discussion among mechanics and engineers. Two boilers, each five feet in diameter and thirty-four feet long, were constructed to stand five atmospheres of pressure. The thickness of the iron boiler was 0.50, and the cast-steel 0.33 of an inch. These boilers were set alike, filled with the same quantity of water, and the fires fed alike with weighed fuel. After several experiments the fires were extinguished, and, at a low temperature, the water was drawn off. The result of the experiment showed the evaporating capacity to be 17-20 per cent. in favor of the steel boiler.

It was thought by some that the greater evaporative quality of the steel boiler was due to its thinness and greater density than the iron one. The more dense the metal the better the evaporative quality. Others thought that the method of manufacture of the plates of the iron boiler had some influence. If those plates were rolled from blooms they were, no doubt, homogeneous, but when they were made from bars of iron cross-piled, welded, and then rolled out, they were formed, as it were, of sheets cemented together, and often prevented from adhesion by strata of dirt or foreign matter. This would affect the evaporative quality of the plates.

GALVANIZING IRON.—The process of galvanizing iron, as practiced in one of the leading establishments of Philadelphia, is as follows: Selected sheets of iron, after being trimmed to requisite size and cleaned by a weak acid solution, are rolled smooth, then dried in an oven and each sheet placed in contact with zinc. Both metals are raised to an equal heat and thus fusion is effected. The regulation of the heat necessary to metallic combination is a point of nicety and care.

CAST PORCELAIN.—Something entirely new in the manufacture of porcelain has recently been introduced in a Philadelphia factory. The new material is called "hot-cast porcelain," for while containing the ingredients of which porcelain is composed, it is worked like glass, and like the latter it can be blown, pressed or rolled into any desired shape.

LEAD AND ZINC are greatly expanded by heat—the latter nearly two and a half times as much as wrought iron, under equal temperatures.

Scientific Miscellany.

ELECTRICAL.—A singular phenomenon was observed recently at the Rochester office of the Atlantic and Pacific Telegraph Line. One of the wires was down between that place and Syracuse, when suddenly it was discovered that neither wire would work. It was then perceived that a continuous current of electricity exhibiting rainbow colors, was passing, although the batteries were detached. The gas in the office was lighted by holding the end of a connecting wire near the burner; and the current was sufficiently intense to scorch the fingers of the operator. This continuous current was broken up into an undulating one when the key was opened, and again made continuous at will.

The Rochester Union gives the following explanation of this phenomenon:

"The theory advanced by an experienced electrician is this. The electrical equilibrium of the atmosphere had become disturbed by the sudden and extreme cold of the past two days—and we may say here that this phenomenon has never been witnessed except when cold weather prevails extensively—the electricity, instead of descending to the earth as in a thunder storm or in warm weather, ascends in the atmosphere, thus destroying the equilibrium and producing these magnificent displays. The broken wire spoken of, which rested on the ground, was the point of communication for the current from the earth. The electrician advances the theory that Aurora Borealis is produced from the same causes, and we submit that it is not an improbable theory. Every one has seen, undoubtedly, the wavy or undulating motions of the Aurora Borealis, and the wavy motions of the current last night with the batteries off and the key open were precisely the same.

NEW GALVANIC BATTERY.—Boetger has constructed a galvanic battery of such constancy that it retains its activity for several years, and is admirably adapted to working electric clocks and for all purposes where constant galvanic action is desired. Each cell consists of a cylinder of thick plate zinc enclosed in a glass jar. In the center of the cylinder is placed a bar of compact coke, and the intervening space is packed with a powder composed of a mixture of equal volumes of pulverized sulphate of magnesia and common salt, moistened with a saturated solution of these two substances. The salt mixture is moistened from time to time, and the zinc carefully connected with the coke, according to the usual method.

HEAT WITHOUT COAL.—Recent scientific discoveries should do much to lessen the alarm of those who fear the exhaustion of our coal fields. Mr. H. W. Pond, of Newark, N. J., remarks that economists have speculated on the possible discovery of some method of producing heat independent of coal, and the decomposition of water has been regarded as a probable expedient. With our present knowledge and appliances it appears not to be difficult to realize this proposition, even in competition with coal—at least in a small way. The agents are obvious—wind-power, a magneto-electric machine, for the decomposition of the water, and oxygen and hydrogen gas-holders. The result would be that oxygen and hydrogen would be available for the production of the heat which would be required. For use in the arts the oxy-hydrogen furnace would, of course, offer advantages far above any other known, and results could be reached impossible with the lower temperature of the coal fire, while the flame would be free from deleterious substances common to coal. Owing to its gaseous form, and the intensity of its heat, this fuel would be manageable in many ways impracticable with coal. For instance, seams could be hard-soldered with great rapidity with the jet of the compound blow-pipe, and it is probable that the joints of steam boilers could be heated for welding in a suitable oxy-hydrogen jet.

The feed water of boilers acquires a galvanic effect in passing through the tubes of surface condensers.

ONE THOUSAND feet of ordinary illuminating gas can be readily compressed into a space of ten feet.

A NEW MODE OF INTENSIFYING LIGHT is said to have been devised by Messrs. Motay & Masechal, which resulted from a discovery by one of their assistants. It has recently been tested in Paris, and proved very successful. The light produced is said to be intense. A small cylinder of magnesium, placed in the center of a gas jet in combustion, becomes luminous, and produces sixty times as much light as ordinary gas. We infer that the magnesium is protected from being consumed in consequence of the absence of oxygen, from the center of the jet, and that a large portion of the waste heat of the jet is thereby converted into light. If the statement is correct, such a light must be of great utility for lighting streets, public buildings, etc.

PICRIC ACID.—In a lecture delivered before the Society for the Encouragement of National Industry in France, Dr. Calvert, F. R. S., spoke of a curious application which has been made of the explosive property of the salts of this acid. During the last few years, the picrate of potassium has been employed in great quantities by Mr. J. Whitworth, for charging the bombs for destroying the iron plating of ships. When the projectiles thus prepared strike the iron masses, the enormous force with which they are expelled from the gun is instantaneously converted into heat, and to such an extent that the ball becomes red hot, the heat decomposes the picrate of potash, and a violent explosion ensues, owing to the enormous quantities of vapors and gases which are thus produced in an instant of time.

SPECTRA OF FLAME.—Prof. A. Lielegg has continued his researches on the spectra of the flame in which the melting is carried on according to the Bessemer system. This flame being only carbonic acid gas in an incandescent state, and the spectrum of this gas being yet unknown, the observations of M. Lielegg have served to fill up a gap in the series of spectra produced by the gases in combustion. The apparition and disappearance of some of the luminous fixed lines is closely connected with the metallurgical operations. At the moment when the decarburization of the iron is nearly terminated, these spectral lines assume essential modifications. The appearance of a group of lines and of an isolated line in the violet blue portion of the spectrum, marks a singular moment of the period during which the soft iron is being formed, and these lines disappear sooner than all the others; their appearance and disappearance serve, therefore, to indicate the termination of the process.

SELF-REGISTERING BAROMETER.—M. Brequet, the well known clock and scientific instrument maker, has exhibited at the Champ de Mars, Paris, a new self-registering barometer, called the "Barometrograph," giving indications every six hours, by diagram, of the pressure of the atmosphere. It consists of four metallic boxes, the upper and lower of which are undulated, (the usual aneroid barometer;) a vacuum is made in each of these boxes separately, and they are attached to a chain, the movement of which is four times greater than that of a single box for the same variation of pressure. A steel spring acts upon these boxes in a contrary direction to the atmospheric pressure, and communicates with an indicating lever. The registration is effected on a cylinder which revolves by means of an ordinary clock; it makes a complete revolution in a week, and carries a glazed paper, which is covered with lamp-black by being held over the flame of a candle; the extremity of this lever, very fine and pointed, traces a line of variations in a white streak. The periods (four times a day) are represented on the diagram by vertical lines, and the barometric readings by horizontal lines placed a millimeter apart, the arm of the indicator being so arranged as to mark the variations on the same scale as a common mercurial barometer. This instrument has none of the errors of the common aneroid barometer resulting from the great number of pieces, levers, articulations, gearing, connecting chains, and springs.

Dr. Crossley, of Lowell, Mass., is manufacturing coffins of slate, instead of wood. They may be sealed air-tight.

Contributed for Our Cabinet.

Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, curiosities, etc., as may be presented, or forwarded to us by mail or express, prepaid. Each article will be numbered and placed in our cabinet, and recorded with the name of the donor, and the claim or location from whence it came.

207.—Mr. J. W. Knox, of the Golden State Foundry, has placed upon our table a fine specimen of sulphureted ore, from the Mountain, or as it is sometimes called, the Belding mine, located about six miles southwest from Volcano. Mr. K. informs us that that portion of the vein from which it was taken, averages from 30 to 40 per cent. of sulphurets, which assay about \$400 per ton, after the free gold has been taken out by the ordinary process of amalgamation. The specimen before us shows a large amount of free gold. The mine was worked some three years by an arrastra; but a 5-stamp mill was erected upon it some two years ago. It is now opened to a depth of 175 feet from the surface, and is worked altogether through shafts. It has already yielded fully \$100,000. The company have been sinking during the present winter, and have recently struck a body of quartz, said to be larger and richer than any ever before found in the mine. It is said to pay as high as \$150 per ton in free gold.

208.—Mr. Joseph Bennett has contributed to our cabinet a specimen of gold and silver ore from Durango, Mexico. The specimen consists in a large part of decomposed quartz, carrying, as we are informed, about twenty ounces per ton of gold and \$900 per ton of silver, mostly as a chloride. Of course, no very large quantity of ore of this description can be found. The mine has been worked a long time by Mexicans with arrastras, the amalgamation being effected in large iron kettles.

BELLINGHAM BAY COAL MINES AGAIN ON FIRE.—The *Olympia* (W. T.) *Transcript* of January 25th, has the following: Captain Roeder informs us that the Bellingham Bay coal mines are on fire again. It will be remembered that they were on fire last summer, and had to be flooded by cutting a channel and letting in water from the Sound. Pumping the water out was only finished about the 1st of January. Extensive preparations had been made to prosecute operations the coming summer, in the building of shutes, putting up of engines, and other improvements, so that the company would be able to take out 400 tons of coal per day. The fire is in the lower works, and it is probable they will have to be flooded to put them out.

HENDY'S CONCENTRATORS.—We noted a short time since that the North Star Company had placed in their mill at French Lead a number of these concentrators and refrained from expressing an opinion as to their merits until a satisfactory test had been made by experience in working them. In another column will be seen a certificate from W. H. Rodda, Esq., the Superintendent of the North Star Co's mine, bearing ample testimony to the merits of these concentrators as a most valuable addition to quartz mill operations in sulphureted saving. The company have eight of these concentrators in operation; and the result is the saving of 95 per cent. of the sulphurets in the rock crushed, thus establishing their value beyond peradventure. We understand that Capt. Lee, Superintendent of the Empire Co's mine at Ophir Hill, has six of these concentrators in operation at the Empire mill, and with the use of these, other kinds of pans formerly in use, can be entirely dispensed with. The invention of Mr. Hendy will commend itself to all operators in quartz mines who may visit and inspect the working of those now in use in our quartz mills.—*Grass Valley National*.

SAFETY OF DR. LIVINGSTONE.—Sir R. Murchison publishes in the *London Times* of Jan. 20th, a telegram just received from the commander of the boat expedition, to the effect that Dr. L. had gone on into the interior in safety. The white man, of whom we have heard as seen on the west side of Lake Tanganyika, must therefore have been the Doctor.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

73,323.—CORN-SHELLER.—Jno. R. Hamilton, Portland, Oregon:

I claim, 1. The apparatus, as constructed, with a series of rowsers *aaa*, arranged in a circle, also the scrapers *fff* in the rear of the rowsers, substantially as and for the purpose set forth.

2. Also, the rowsers, as arranged alternately, the one forward of another, the same being pressed by springs towards the center, so as to act as a wedge, parallel with, between, and under the rows of corn.

3. Also, the sliding plunger *H*, to push ears between and through bars *aaa*, with the rowsers or points *b b* attached either vertically or horizontally, as and for the purposes herein set forth.

73,324.—LAMP-CHIMNEY CLEANER.—Jonathan R. Hamilton, Portland, Oregon:

I claim, 1. The scrubbers or wipers *A A'* and *C C'*, when constructed and applied so as to operate substantially in the manner as and for the purposes herein set forth.

2. Also, the wiper, as constructed, in combination with the gear-mechanism for operating the same, as specified.

73,348.—THRESHING MACHINE AND GRAIN SEPARATOR.—Levi B. Lathrop, San José, Cal.:

I claim, 1. The device for imparting the peculiar motion, as herein described, to the screen *E*, said device consisting of the inclined guides *C*, arm *G*, and crank-shaft *H*, or their respective equivalents.

1. Providing a screen, *E*, with alternate depressions and elevations similar to waves, substantially as and for the purposes herein shown and described.

3. The packing *e*, when arranged at the sides of the frame of the screen, substantially as and for the purposes herein shown and described.

4. Passing the grain by any suitable conveyor directly under the end of a suction pipe, as set forth.

5. The screen *E*, when arranged and operated as set forth, in combination with the suction tube *I*, the same being arranged substantially as described.

6. The tossing motion of the screen *E*, when applied to the purpose of separating grain from straw, or for separating it from chaff, or for simply conveying light articles, substantially as described.

73,366.—STAMP MILL.—Geo. R. Mitchell, Nevada, Cal.:

I claim, 1. The bearing *D*, having the lower portion enlarged, forming a water chamber, *a*, substantially as described.

2. In combination with the above, and with the stem *B* of stamp *A*, the water-supply pipe *H*, tube *F*, stop-cock *G*, and flexible hose *E*, substantially as described and for the purpose specified.

73,497.—SPRING ATTACHMENT FOR VEHICLES.—Eliphalet C. Brooks, San Francisco, Cal.:

I claim the combination of the shield *A*, bolts *F* and *G*, with the perch *D*, axle *E*, in combination with the spring *C* and thorough-brace *B*, substantially as shown for the purposes specified.

73,519.—MACHINE FOR COLLECTING AND CONDENSING METALLIC VAPOR.—Ferdinand Formhals, San Francisco, Cal.:

I claim, 1. The construction of the cagniardelle-blower principally of wood.

2. Also, the combination of the cagniardelle with the furnace, in combination with tanks, substantially as set forth and shown, and for the purposes specified.

73,555.—TAMPING AND BLASTING MACHINE FOR SPLITTING WOOD.—Elisha W. Walton, Drytown, assignor to Joseph H. Atkinson, San Francisco, Cal.:

I claim, 1. The construction of the barrel with a charge cavity and screw, with cross-head, handles, nipple, and hammer, substantially as described, and for the purposes set forth.

2. Also, the screw cleaner, for the purposes set forth.

73,556.—CHURN.—Samuel J. Whipple, Oroville, Cal., assignor to himself and Jos. H. Atkinson.

I claim a metallic or wooden churn, in which all the parts described and represented are arranged in the manner set forth.

73,682.—HYDROCARBON BURNER.—James H. White, San Francisco, Cal.:

I claim, 1. The combined use of the products of decomposed steam and wet or ordinary steam, each being introduced separately, and in such proportions as may be required, into a gas holder or mixer, for

the more perfect combustion of the vapor of hydrocarbon oils, substantially as described.

2. The superheating and decomposing apparatus, consisting of the cylinders *J J'* and *I*, and the gas or supply tube within the mixer or holder *D*, substantially as described.

3. The horizontal cylinders or mixers *D D*, having openings or hurners entirely around their circumference, on the under side as well as the others, which causes them to be more effectually heated, and also prevents their filling or being clogged by a residuum.

4. The combination and arrangement of the interior perforated tubes or pipes *F, g*, and *d*, with the exterior cylinder or mixers *D D*, substantially in the manner and for the purposes set forth.

5. In combination with the above claimed apparatus, the perforated air-tube *L*, for supplying hot air to render the combustion of the vapor and gases issuing from the mixers more perfect.

The object of this invention is to provide an improved apparatus for burning the gas of steam and petroleum as fuel, and more especially when used under steam boilers; and it consists in first introducing the petroleum to a horizontal heated cylinder, by means of a small pipe extending longitudinally through the cylinder, and having three or more perforations on the top, through which the oil is allowed to pass. When it leaves the pipe it is instantly vaporized, and fills the cylinder with hydrocarbon vapor. As this vapor contains an excess of carbon, it will not fully consume, but will burn with much smoke and deposit soot. The inventor therefore passes a small quantity of steam from the boiler, first through a superheater, and thence through a cylinder filled with coke in small fragments, where it is decomposed, and hydrogen and carbonic oxide are formed. These two gases are allowed to pass into the first mentioned cylinder by means of a perforated pipe, and are there intimately mixed with the hydrocarbon vapor. A jet of wet or ordinary steam is then introduced to the cylinder, where the excess of carbon decomposes it, from its well known avidity for oxygen when at a high temperature, taking one proportion of oxygen and forming carbonic oxide, and leaving the hydrogen free. These gases thus produced, together with the hydrocarbon vapor, then pass from the cylinder through jet-tubes or burners, situated at a small distance from each other, and all over the cylinder, where they meet with the oxygen of the air, and are burned with an intense heat. An additional supply of oxygen is furnished for more complete combustion, by a perforated tube connecting with the open air, or with a blower, and opening into the fire-chamber behind the bridge-wall.

It is claimed by the inventor that the results of this combustion are very much greater than those obtained by any other method of burning petroleum, and by experiment have proven that the amount of heat-producing fuel furnished by the steam is nearly equal to that produced from the oil, it being in fact a water-gas. The oil used in the apparatus is either crude petroleum as it is gathered from the wells, and the foreign matter allowed to settle, or as it is provided by distilling the petroleum, or shales which contain it, and which are found in great abundance on the California coast. This distilled oil should not be below twenty degrees nor above thirty-five, Baumé's hydrometer, with the thermometer at 60° Fah.

RECENT INVENTIONS.

NEW GRAVITY PADDLE WHEEL.—Mr. Wm. Sublett, of this city, has applied for letters patent through the MINING AND SCIENTIFIC PRESS PATENT AGENCY, for an improved gravity paddle wheel, the object of which is to provide a wheel, in which the lift or "dead water," as it is called, may be avoided as the boat leaves the water; while at the same time there are few joints or bearings to be corroded, and no complicated mechanism involved—the floats turning automatically. These floats are pivoted at each end in the rim of the wheel, the pivots being situated in the center of the float, but about one-third of the whole width from its upper edge, and strengthened by suitable bearings inserted in the face of the wheel, which are believed by the inventor to be equal to the power demanded of them. In

the forward motion, the paddle strikes the water as any ordinary float, and with the same power, until it reaches the point of greatest depth, or directly under the axle of the wheel, when it turns by the force of gravity, so as to present only its edge as a resistance to the water during its return to the surface, at the same time throwing off all dead water as it emerges, to again assume its proper position by means of the same beautiful law.

In the backward motion of this wheel the blades strike edgewise, avoiding the jar or lift of the stationary floats, while the blades, turning at about the depth of the paddles, become locked, and act precisely as in the common wheel, but with more propulsive power, as is claimed, to the extent of from ten to fifteen per cent. in consequence of avoiding the jar and lift, by means of the feathering action as described.

From a personal examination of a working model, at Mr. Hammond's jewelry store, No. 57 Second street, where a three-foot wheel is at work, and where the same was made, we should judge that its backward motion, for reasons already assigned, would require from 30 to 50 per cent. more power than the forward movement.

As to the power of this wheel over others, the inventor is sanguine that while running at a depth of only a few inches, it will be equal in propulsive power to that of any wheel in use; that it will gain in power as it is submerged, until it sinks beneath the center of the wheel in consequence of bringing to bear a greater number of paddles to accomplish its work, unaccompanied by the dead water lift by which other wheels are encumbered, when similarly submerged.

We understand that arrangements are soon to be made to put this wheel to a practical test, by which the question as to its availability and advantages over those in ordinary use will be fully, and as we hope, satisfactorily settled. We understand that the model above described, has been examined by a number of shipwrights, who have expressed much confidence in the invention. Mr. S. is also preparing to make a trial in a short time of his propeller, another invention, to which allusion was made not long since in our columns.

NORTH BLOOMFIELD GRAVEL COMPANY.—The North Bloomfield Gravel Mining Co. has increased its capital stock from \$400,000 in 80 shares of \$5,000 each, to \$800,000 in 8,000 of \$100 each. Among the holders of the 80 shares, we notice the names of W. C. Ralston, S. F. Butterworth, and A. Pioche, of this city. The property of the company consists of ditch and gravel claims, located in Nevada county.

THE PESTILENCE IN BUENOS AYRES.—A letter of date January 13th, says that five thousand persons had been carried off by cholera in forty days. The churches are taken for hospitals. There are not carts enough to carry away the dead, nor men enough to dig their graves.

DEATH OF A WEALTHY IRON MASTER.—Mr. Crawshaw, the wealthiest iron master in England, has recently deceased. His estate, which was at first thought to be worth about \$20,000,000, has finally turned out to be fully \$35,000,000.

THE telegraph informs us that the corner stone of the great bridge across the Mississippi at St. Louis, was laid on Wednesday last, with appropriate ceremonies.

GAS IN STOCKTON.—Capt. Kidd, of Nevada, the original owner of the steamer Washoe, has entered into a contract with the authorities of Stockton, to furnish that city with gas works.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

EMPIRE G. & S. M. Co.—Feb. 25th.—Meadow Lake, Cal. Capital stock, \$100,000; 2,000 shares, \$50 each. Trustees: R. W. Neagle, W. R. Morris and L. B. Hines.

CONSTOCK M. Co.—Feb. 24th.—Gold Hill, Nevada. Capital stock, \$1,250,000; 2,500 shares, \$500 each. Trustees: J. J. Holmes, John Lannie, A. J. Finley, Benj. E. Harris and Tohn R. Brett.

CONTINENTAL Life Insurance Company 302 Montgomery street, corner of Pine.

Weekly Stock Circular.

Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
FEBRUARY 23, 1888.

Financial.

Our money market is in a most plethoric condition, but rates remain unchanged. A financial curiosity exists in this city, which we allude to simply because it is a problem we have been unable to solve. Some banking houses, or acting in that capacity, pay their depositors 1 per cent. per month, while the heavy concerns are only too glad to loan at 10 per cent. per annum. Our State Treasury contains, at the present writing, one million one hundred and fifty-nine thousand six hundred and fifty-seven dollars in coin—not paper promises—while our City Treasury is in a like healthy condition. It seems a pity that some way cannot be devised by which these large sums may be made to draw interest, without coming into direct competition with private enterprise or capital.

The gold deposits in the San Francisco Branch Mint to the 31st January, inclusive, were 9,143 ounces gold, and 22,420 ounces silver, while the coinage for the same period amounted to \$80,000 gold, and \$17,000 silver. The Mint reopened on the 18th January, consequently the above returns are for less than one-half the month. Our roads have been for weeks in an almost impassable condition, communication with the interior and mining regions being difficult, and frequently impossible. For this reason the Virginia office of Wells, Fargo & Co. has ceased to receive bullion, not being able to send it forward.

Gold bars are scarce and in demand, selling at 910. The silver bullion market is in an excited condition, owing to unusual competition among capitalists for its possession. Silver bars are very scarce, and ranging all the way from 1/4 to 1 1/2, and even as high as 1 1/2 per cent. premium, with a strong upward tendency. We quote Currency Bills on Atlantic cities at 96 3/4 per cent. premium on gold; Sight Drafts, payable in coin, at 1/4 per cent. premium; Telegraphic Transfers, 1 per cent.; Sterling Exchange, 45 1/4, and Commercial Exchange, 49 1/4 @ 49 1/2.

Real estate transactions are continued with unabated vigor, amounting almost to a fever. In many instances lands have been purchased for much more than their real value, or what they are likely to be actually worth for several years to come. The experiences of the past should not be lost sight of at this time. In 1855 real estate values had been inflated to almost fabulous figures, and this species of property was received by the banks as collateral security at rates entirely disproportionate to its actual value. When the financial crash came, the banks failed to realize on those collaterals, and real estate fell to a nominal value, causing ruin to thousands, and dragging down with it all confidence in its future. The inauguration of the Pacific Railroad enterprise, the rapid progress made in its construction, the building of other railroads in the State, the immense supplies of wheat and other farm products shipped from this port during the past two years, and other causes tending to the enlargement and commercial prosperity of this city, have had the effect of restoring confidence in real estate; but there is danger that it will be carried to a ruinous extent. Large masses of capital which could have been as profitably invested in other legitimate business, the establishment of which would have resulted in greater public and private benefit, have been directed to the purchase of this species of property. While it affords a source for sincere gratification to witness so general a conviction of the future greatness of this city, it would be quite as well to use a little prudence, and not apply the hot-house forcing process.

The shipments of Treasure from February 1st to date have been as follows:

February 8—Per Idaho to Honolulu	\$25,000 00
February 10—Per Montana—	
To New York	\$1,038,781 30
To Panama	20,000 00
February 12—Per Golden City—	
To New York	\$476,147 47
To England	2,616 74
To France	2,652 07
To Panama	20,000 00
February 19—Per John Wooster to Hongkong	501,416 28
	59,707 81
Total since February 1st, 1888	\$1,644,963 39
Previously this year	4,823,963 27
Total since January 1st, 1888	\$5,470,868 66
Corresponding period 1887	7,267,340 24

Decrease this year, \$1,796,471 58

The duties paid at the Custom House in this city since Feb. 15th, and previously this year, have been as follows:

February 11	\$9,079 26
February 12	34,129 74
February 13	37,271 90
February 14	15,303 87
February 15	24,066 72
February 16	23,215 01
February 17	16,298 97
February 18	29,389 39
February 19	5,036 03
Previously in February	935,515 65

In February to date, \$832,236 54
In January, 893,238 05

Total since January 1st, 1888, \$1,225,474 90

City Stocks.

The market has been almost devoid of transactions in other than mining stocks during the period under review. We observe that Gas stock is in demand, private sales having been made at \$57 50, including the usual 1/2 per cent. dividend payable next Monday. Transactions in Water Co. stock were made at \$50, with a downward tendency, owing to the probability that the capital stock of this company will be increased \$2,000,000 at the meeting of stockholders to be held on the 17th inst. City Bonds have been in the market at \$90 @ 91. California Steam Navigation Company stock is sought for at 73 1/4 per cent. Insurance stocks are dull, and few transfers have been made within a week or two. At the close, twenty shares of Sutter Street Railroad (old stock) sold at \$11 50.

The receipts of the local insurance companies during the month of January, 1888, according to the returns made to the Internal Revenue Department, have been as follows:

Pacific	\$85,439
Union	30,223
National	34,044
Fireman's Fund	18,653
Builders	17,358
California	11,136
Merchants' Mutual Marine	11,331
Occidental	5,289
Home Mutual	8,396
San Francisco	4,921
Peoples	8,769
Total	\$213,171

The returns were made upon a legal tender basis, the rate—72 cents for January—being fixed every month by the Assessor of the district.

The above statement shows a very considerable gain over the receipts in December, the aggregate increase amounting to \$36,743. The receipts of the several companies in

January, as compared with December, show the following difference:

	Increase.	Decrease.
Pacific	\$8,231	
Union	5,384	
National	5,509	
Fireman's Fund	3,106	
Builders	1,546	\$1,160
California	5,059	
Merchants' Mutual Marine	1,111	
Occidental	1,892	
Home Mutual	552	

The receipts of the city railroads for the month of January, 1888, have been as follows:

Omnibus	\$21,693
North Beach & Mission	19,545
Central	11,520
Front Street, Mission & Ocean	7,986
Market Street	5,949
Potrero and Bay View	986
Total	\$67,069

In December the total receipts amounted to \$70,251, showing a decrease of \$3,182 in the month of January.

Mining Share Market.

The condition of the mining share market is still active. A slight decline manifested itself early in the week, which, however, was but momentary, and stocks at present continue at a high figure. The recent rapid advance came rather unexpectedly, and may be mainly attributable to the activity of Hale & Norcross a few weeks since. Insiders looked for a sharp advance early in the spring, but the eagerness of purchasers with unemployed capital developed itself so rapidly that outsiders now command the situation. The sales at present are larger than ever before, and a still greater increase may be looked for, since profits upon ventures have been unusually large. The operators in the immediate vicinity of the Exchange have received large accessions to their numbers, and at high noon California street emulates the activity and excitement of Wall street.

The open sessions of the Board will hereafter be held from 10 to 10 1/2 o'clock, A. M.

SAVOYO—received from \$200 to \$174, and closed at \$178. We note a lessened product for the week ending February 22, 1,307 tons of ore being the yield, valued at \$49,026, or \$30 62 per ton. Of this amount the north mine, on the third stratum, produced 650 tons, and the south mine, same level, 422 tons. The north drift on the fourth stratum is again barren, and at present only the most promising streaks are followed. The south mine, on the same level is reported to look as well as ever, the drift having been advanced some twenty-five feet south, and the face showing excellent ore. On the fifth stratum, 215 feet northwest from the shaft, a body of ore and quartz has been unexpectedly developed, comprising some four feet of fair ore and five feet of quartz rock. These are promising indications for the future of the mine.

IMPERIAL—declined from \$270 to \$229, advanced to \$265, and closed at \$247 50. This mine shows no material change since our last issue. About seventy-five tons of ore continue to be daily taken from the Alta mine, and from the Holmes mine some ten tons per day are at present extracted; the latter will be increased shortly. It is now reported that they will be ready to drift from the new shaft early next week. The shaft and machinery are in perfect order. Receipts of bullion during the current month, \$37,036.

CROWN POINT—sold to a small extent, dropping from \$1,900 to \$1,655, rising to \$1,840, then selling at \$1,775, and at the close \$1,800 bid. At present no ore is taken from this mine. A large force of hands was employed in retimbering the shaft, which was finished on the 24th inst. It is reported that the prospects are very fair on the 880 level. Receipts of bullion during the current month, \$23,500.

KENTUCK—has been quite active, declining from \$300 to \$265, advancing to \$292 50, and closing yesterday at \$282 50. The receipts of bullion for February account are stated at \$5,017; it may however be remarked, that the run for the present month commenced on the 15th inst.

HALE & NORCROSS—We are informed that the connection between the 330 and 750 levels has been made. The upper floors of the lower level continue to look well.

OVERMAN—was largely dealt in, dropping from \$240 to \$190, rallying to \$230, then selling at \$210, and closing at \$200. This company is now extracting ore quite freely. At latest advices they had four mills at work, which were reducing about 100 tons of ore per day. So soon as they commence extracting ore from the 361 level additional mills will be employed. A small amount of bullion is now ready for shipment, but the bad condition of the roads prevents its transportation. By later advices we learn that in drifting north towards the Segregated Belcher ground, on the 500 level, at a point 82 feet from the shaft, some fine ore has been developed.

CHOLLAR-POHOS—has been tolerably active, selling within a range of \$200 @ 215, and closing at \$205. During the week ending February 20th, but 78 tons of ore were extracted, the entire amount coming from the Blue Wing stratum; 520 tons were sent to custom mills during the same period. No encouraging developments have been made during the week under review. The shaft is now 925 feet in depth, and the drift at the 332 level is running in barren quartz. On the 24th inst., 33 1/2 tons of ore were shipped to custom mills.

AMADOR—advanced from \$230 to \$300. This mine continues to look well. The yield of bullion in February, it is confidently believed, will reach nearly \$50,000. The next monthly dividend will probably be larger.

YELLOW JACKET—opened at \$1,225, declined to \$1,220, rallied to \$1,300, and closed at \$1,280. It is expected that another assessment will soon be levied. GOLD & CURRY declined from \$100 to \$550, advanced to \$615, and at the close sold at \$625. ALPHA received from \$1,570 to \$1,475. BELCHER from \$280 to \$285, closing at \$300. OVERMAN from \$175 to \$154, and at the close sold at \$164.

Both EXCHEQUER and SEGREGATED BELCHER were disposed of to a large extent, the former selling at \$44 @ 33, and closing at \$40; and the latter at \$20 @ 19, closing at \$20.

LADY BRYAN—has been in the market at \$25 @ 37 50, closing yesterday at \$30. By a telegraphic dispatch we learn that \$1,500 in bullion will be forwarded to this city on the first proximo. The mine is reported to look better than the others. ALPHA sold at \$224 @ 30, and GOLD HILL QUARTZ at \$97 @ 90 1/2.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,863,747; open sessions, \$324,310—total, \$2,188,057.

GOVERNMENT RAILROADS.—Hon. Josiah Quincy is still urging his favorite plan that

the State governments should own and operate all railroads within their respective territories. He is anxious that the experiment should be immediately tried on the Great Western road from Boston to Albany.

MANY of the English railroads now send out pilot engines in advance of the trains, in consequence of anticipated mischief from the Fenians.

MINING SHAREHOLDERS' DIRECTORY.

(Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.)

Comprising the Names of Companies, District or County of Location, Amount and Date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME.	LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY OF DELINQUENT SALE.	DAY OF PAYMENT OF DIVIDENDS.
Alfella, Sierra Co., Feb. 3, \$1.	March 6—March 30	Payable Jan 10	
Amador Co., Feb. 26, \$1.	April 2—April 25	Payable Jan 10	
Chalk Mt., Nevada Co., Feb. 4, \$5.	March 2—April 8	Payable Jan 10	
Gale, Storey Co., Nev., Feb. 21, \$5.	March 23—April 7	Payable Jan 10	
Cherokee Flat R. G., Butte Co., Feb. 10, \$5.	March 17—April 6	Payable Jan 10	
Chico, Placer, Storey Co., Feb. 10, \$5.	March 17—April 6	Payable Jan 10	
Campana Sico, Calaveras Co., Jan. 23, \$2.	March 1—March 16	Payable Jan 10	
Chilpanaut, Sonora, Mexico, Jan. 23, \$5.	Feb. 26—March 16	Payable Jan 10	
Crown Point, Nev., dividend \$50.	Payable May 15		
Dancy, Lyon Co., Nev.	Annual Meeting March 2		
Dancy, Lyon Co., Nev., Feb. 1, \$2.	March 4—March 23	Payable Jan 10	
Do Padre, Mar. 10, \$5.	Feb. 11—March 5	Payable Jan 10	
Exchequer, Gold Hill, Nev., Jan. 31, \$1.	March 4—March 25	Payable Jan 10	
Empire M. & M., Nev., dividend \$5.	Payable May 15		
Fogus M. & M., Amador Co., Feb. 19, \$10.	March 23—April 9	Payable Jan 10	
Golden Rule, Tuolumne Co., div. 50c @ 10.	Payable Feb 25		
Grant Central, Arizona, Feb. 19, \$1.	March 23—April 14	Payable Jan 10	
Gold Hill Q. M. & M.—dividend, \$7 50.	Payable Dec 16		
Hale & Norcross, Storey Co., Nev., Annual Meeting March 11			
Humboldt Canal, Humboldt, Feb. 10, \$6.	March 15—April 11	Payable Jan 10	
Hon. General, Nevada Co., Feb. 26, \$1.	March 17—April 6	Payable Jan 10	
Hanscom, Del Norte Co., Jan. 15, 75c.	Feb. 14—March 2	Payable Jan 10	
L. X. L. Alpine Co., Feb. 13, \$1 50.	March 23—April 15	Payable Jan 10	
Imperial, Virginia, Nev., div. \$10.	Payable July 15		
Julia, Storey Co., Nev., Feb. 18, \$2 50.	March 23—April 11	Payable Jan 10	
Josephine Quicksilver, San Luis Obispo, div. \$2.	July 5		
Kearnsage, Inyo Co., Jan. 20, \$1.	March 21—April 16	Payable Jan 10	
Kentuck, Nev., \$7 50 per share.	Payable Nov 9		
Lyon Mill, El Dorado Co., Feb. 22, \$2.	March 27—April 13	Payable Jan 10	
La Blanca, Sonora, Mex., Jan. 12, \$2.	Feb. 1—March 23	Payable Jan 10	
Lake, Cal. Co., Jan. 15, \$2.	Feb. 16—March 5	Payable Jan 10	
Lady Bell, Del Norte Co., Jan. 15c.	Feb. 10—March 3	Payable Jan 10	
Nuestra Señora, Mexico.	Annual Meeting March 6		
Nuestra Señora, Mex., Jan. 3, \$1.	Feb. 10—March 3	Payable Jan 10	
North Star Lander Co., Nev., dividend.	Payable Nov 23		
Mohawk & Montreal, Nev. Co., Feb. 14, \$2 50.	March 20—April 10	Payable Jan 10	
Morning Star, Alpine Co., Feb. 14, \$1.	March 24—April 11	Payable Jan 10	
Mt. Tenabo, Lander Co., Nev., Jan. 2, \$2 50.	Feb. 20—March 12	Payable Jan 10	
Oxford Beta, Esmeralda, Nev., Feb. 14, 50c.	March 13—April 16	Payable Jan 10	
Oronogo, Gold Hill, Nev., Jan. 20, \$15.	March 4—March 19	Payable Jan 10	
Opfir, Storey Co., Nev., Jan. 20, \$3.	Feb. 20—March 10	Payable Jan 10	
Patrocina & Dolores, Mex., Jan. 15, \$2.	Feb. 14—March 2	Payable Jan 10	
Rogers, Storey Co., Nev., Jan. 20, \$1.	Feb. 12—March 12	Payable Jan 10	
Ripport, Alpine Co., Dec. 17, 50c.	Jan. 22—March 6	Payable Jan 10	
Rickards, Yuba Co., Jan. 23, \$2.	Feb. 26—March 17	Payable Jan 10	
Sierra, Genoa, Nev., Feb. 10, \$1 50.	March 18—April 12	Payable Jan 10	
Stockton City Bond, Nevada Co., Feb. 26, \$1.	March 20—April 21	Payable Jan 10	
Succor, Storey Co., Feb. 10, 50c.	March 16—April 4	Payable Jan 10	
San Jose, Silver City, dividend.	Payable Feb 15		
Sierra Nevada, Storey Co., Nev., Feb. 6, \$10.	Mar. 11—Mar. 31	Payable Jan 10	
Savago, Virginia, Nev., dividend	Payable Jan 15		
Texas Flat, Fresno Co., Cal., Jan. 3, 25c per sh.	Feb. 15—Mar 3	Payable Jan 10	
Ventana, Mex., Jan. 5, \$1 50.	Feb. 27—March 24	Payable Jan 10	
Welch Q., Contra Costa Co., Jan. 22, \$3.	March 17—April 7	Payable Jan 10	
Yellow Jacket, Gold Hill, Nev., Jan. 22, \$25.	Feb. 21—March 23	Payable Jan 10	
Yellow Jacket, Gold Hill, div. \$70 sh.	Payable July 10		

Those marked with an asterisk () are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

MISCELLANEOUS STOCKS.	Bid.	Asked.
United States 3-10% Bonds, Feb. 1888.	76 1/2	77 1/2
Legal Tender Notes.	76 1/2	77 1/2
California State Bonds, 7s, 1887.	93	96
San Francisco Bonds, 10s, 1887.	102	104
San Francisco City and County Bonds, 6s, 1888.	80	84
San Francisco City and County Bonds, 8s, 1888.	80	84
San Francisco City and County Bonds, 10s, 1888.	80	84
San Francisco City and County Bonds, 12s, 1888.	80	84
San Francisco City and County Bonds, 14s, 1888.	80	84
San Francisco City and County Bonds, 16s, 1888.	80	84
San Francisco City and County Bonds, 18s, 1888.	80	84
San Francisco City and County Bonds, 20s, 1888.	80	84
San Francisco City and County Bonds, 22s, 1888.	80	84
San Francisco City and County Bonds, 24s, 1888.	80	84
San Francisco City and County Bonds, 26s, 1888.	80	84
San Francisco City and County Bonds, 28s, 1888.	80	84
San Francisco City and County Bonds, 30s, 1888.	80	84
San Francisco City and County Bonds, 32s, 1888.	80	84
San Francisco City and County Bonds, 34s, 1888.	80	84
San Francisco City and County Bonds, 36s, 1888.	80	84
San Francisco City and County Bonds, 38s, 1888.	80	84
San Francisco City and County Bonds, 40s, 1888.	80	84
San Francisco City and County Bonds, 42s, 1888.	80	84
San Francisco City and County Bonds, 44s, 1888.	80	84
San Francisco City and County Bonds, 46s, 1888.	80	84
San Francisco City and County Bonds, 48s, 1888.	80	84
San Francisco City and County Bonds, 50s, 1888.	80	84
San Francisco City and County Bonds, 52s, 1888.	80	84
San Francisco City and County Bonds, 54s, 1888.	80	84
San Francisco City and County Bonds, 56s, 1888.	80	84
San Francisco City and County Bonds, 58s, 1888.	80	84
San Francisco City and County Bonds, 60s, 1888.	80	84
San Francisco City and County Bonds, 62s, 1888.	80	84
San Francisco City and County Bonds, 64s, 1888.	80	84
San Francisco City and County Bonds, 66s, 1888.	80	84
San Francisco City and County Bonds, 68s, 1888.	80	84
San Francisco City and County Bonds, 70s, 1888.	80	84
San Francisco City and County Bonds, 72s, 1888.	80	84
San Francisco City and County Bonds, 74s, 1888.	80	84
San Francisco City and County Bonds, 76s, 1888.	80	84
San Francisco City and County Bonds, 78s, 1888.	80	84
San Francisco City and County Bonds, 80s, 1888.	80	84
San Francisco City and County Bonds, 82s, 1888.	80	84
San Francisco City and County Bonds, 84s, 1888.	80	84
San Francisco City and County Bonds, 86s, 1888.	80	84
San Francisco City and County Bonds, 88s, 1888.	80	84
San Francisco City and County Bonds, 90s, 1888.	80	84
San Francisco City and County Bonds, 92s, 1888.	80	84
San Francisco City and County Bonds, 94s, 1888.	80	84
San Francisco City and County Bonds, 96s, 1888.	80	84
San Francisco City and County Bonds, 98s, 1888.	80	84
San Francisco City and County Bonds, 100s, 1888.	80	84

OAS COMPANIES.

San Francisco Oas Co.	67 1/2	68 1/2
Sacramento Oas Co.	—	—

RAILROADS.

Sacramento Valley Railroad.	—	—
San Francisco and San Jose Railroad.	40	45
Omnibus Railroad.	61	62
Central Railroad.	60	61
North Beach and Mission Railroad.	60	61
Front Street, Mission and Ocean Railroad.	11	12

BANKING INSTITUTIONS.

California Loan and Savings Society.	—	—
Bank of Pacific Accumulation Loan Society.	90	100
The Bank of California.	153	165

INSURANCE COMPANIES.

Fireman's Fund Insurance Co.	85	86
Pacific Insurance Co.	115	119
San Francisco Insurance Co.	—	100
Merchants' Mutual Marine Insurance Co.	489	493
California Insurance Co.	139	140
Union Insurance Co.	90	92 1/2
California Home Insurance Co.	—	10

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Feb. 15th: The Pennsylvania company continues to encounter small veins of quartz, bearing fine ruby silver ore. They think they have about seventy feet more to make to cut the main lode.

The Pittsburg has struck a lode in the main tunnel. They are three feet into quartz which shows silver.

The Lateral tunnel of the Monitor Consolidated Co. has in a little less than three weeks time gone in on the ledge over forty feet.

The successful bidder for the contract of the Imperial Co., Mr. Wm. Mercer, of Silver Mountain, commences on Monday with a force of six men and is to run the tunnel without delay.

Amador County.

Ledger, Feb. 22d: The present fair weather is stimulating operators in quartz to renewed and usually successful exertions. From all parts we hear good news. Sixteen miles east of Jackson, at the Mountain mine, or Belding, as it is sometimes called, Benjamin & Co., who have been sinking the present winter, struck a body of quartz said to be larger and richer than any ever before found in the mine, paying over \$150 per ton.

The Pioneer now under lease by Sorocco Bros. and McLane, is in full blast, and we hear they have contracted for the delivery of two hundred tons of the ore at Thoss' sulphuret mills on Elsie creek. The Italian, also owned by the above named Co., made a fine strike in the south drift the present week. The Union, too, we hear, will continue its developments, and the ore sent to Mr. Griffin of the Sutter Creek mill.

To speak of such mines as the Coney, the Kennedy, the Oneida, the Eureka, the Mahoney, the Keystone etc., where tens of thousands are turned out weekly, would be superfluous.

Calaveras County.

Chronicle, Feb. 22d: The famous "Petticoat" lead, located at Railroad Flat, has been sold recently, for the sum of ten thousand dollars. We understand that a gentleman by the name of Said was the purchaser. The rock from the claim before reaching the water level, paid remarkably well. As nothing further could be done without machinery, and the locators had not the means of procuring it, they concluded to sell. The company will undoubtedly erect a mill in the spring.

Mariposa County.

Gazette, Feb. 22d: We learn that Mr. Brummagin, the present manager of the Mariposa Estate, will commence operations immediately on the Pine Tree and Josephine mines. Mr. Brummagin, is now fully aware of the folly of building mills, and high dams; and it is his intention to construct a ditch from a point on the Merced river, formerly known as the "Old Broadhead Dam," where there is a natural dam with a fall of twenty-four feet, and immediately below a succession of falls, which places the ditch above all high water marks. A ditch constructed from that point, as we learn, would be about six miles in length, with a twelve or fourteen foot grade to the mile, and would bring the water from eighty to one hundred feet above the river at the Benton mills, thereby giving the Co. ample space to set their mills and machinery above the reach of the highest freshets.

The mining company at the lower end of town struck very good ground on Thursday, when they cleaned up twenty-five dollars. There are four men in the company.

Mail, Feb. 22d: The Bear Valley mill was started on the 13th inst., on Josephine ore. It runs 12 stamps in dry batteries, whence the pulverized ore passes through screens into revolving drums containing iron balls; thence into the Ryerson amalgamator, from which it is discharged upon the shaking table. The capacity of the mill is ten tons per 24 hours. The yield of the ore now under treatment is from \$25 to \$50 per ton, with great regularity. The Pine Tree mine, is in good condition.

On the Oakes & Reese mine, the main shaft is now 200 feet in depth. The mill works 15 tons per day, or 300 tons to the run of 20 days. The average yield is \$30 per ton. All the workings are now yielding superior ores; while at one point, a small lateral vein is yielding rock of astonishing richness. The entire works have been erected within a year, at a cost, above receipts, of about \$75,000. The mill commenced operations about the 15th of No-

vember, and has run steadily since. It is one of the most complete and best managed in the State.

The Carson mill and mine are lying idle—the mine filled with water.

Barrett, Pillon & Machin, whose mine is on the Blue lead, about one mile and a half southward from the Oakes & Reese, struck a very rich pocket some time in December, and since the 20th of that month have taken out about \$40,000, and are still extracting extremely rich ore.

La Victoire Copper Mine, which a few years since promised to become the second copper mine in the State, has been entirely abandoned.

Sonora Herald, Feb. 22d: We learn that the result of the last week's work on the Ferguson mine with an 8-stamp mill was 174 ounces of gold. Coleman and Doherty are making big licks on Ned's Gulch. Their rock pays about \$150 per ton. Parties from San Francisco have purchased the Rutherford Mine, on the Merced above Ferguson's, and are going to build upon it. At Hite's Cove, the old mill being washed away, work is suspended on the mine; but in the course of a month Hite & Co. will commence building a 20-stamp mill. Andrew Rocca's mine near the Bower Cave, Peter Winian's, Eclipse mine, on the North Fork, and H. G. Coward's, on Gentry's Gulch, are all being actively worked and are paying well.

Nevada County.

Transcript, Feb. 20th: Negotiations are pending for a heavy sale of mining ground and water rights in Little York township. The Williams' ditch, Brown & Bros. mining claims, and other ground, is mentioned as being included. San Francisco and English capitalists are said to be interested. The price mentioned is in the neighborhood of \$150,000.

The North Star mine is now yielding handsomely. Six pumps are kept running. The incline is now down 900 ft., the lead is being worked from several levels, and it is proposed to sink 100 ft. more for another. Recently a new 30-horse engine has been put up to do the hoisting from the incline, and the 15-horse engine formerly used for this purpose is being put up over a new shaft, which is already 90 ft. below the surface. The mill is run by two 60-horse engines. Sixteen heavy stamps are kept going constantly. Several of Hendy's concentrators have been put up in the mill. The sulphurets saved by them are very clean.

The parties working the Wisconsin mine by contract are now engaged in putting in a "plunger," and adding to the strength of the machinery. This mine is located between Grass Valley and Allisou Ranch.

The town of Forest Springs is not so lively as last year, but the mill is kept running, and considerable prospecting is being done upon the hills around.

21st: At Red Dog, several companies are at work, some drifting and others preparing their claims for active operations. Seven companies are almost ready to start up.

At You Bet, the cement claims seem to be doing well, but several have shut down in consequence of a deficiency of water. Ennis & Co. and Neece & West are taking out considerable money. The ditches were all broken and flumes considerably injured by the storms, but the damage will soon be repaired. Williams' ditch is running water, and it is expected that Kidd & Co's ditch will bring in water by the end of this week.

22d: The Newark Co. last fall located and purchased the bed of Greenhorn creek from the crossing of the Grass Valley and Red Dog road up some eight or ten miles. A large double flume was securely bolted to the bed-rock, most of which withstood the severe freshets just passed. It is expected that the company will employ a large number of men this summer. The bed of this stream has never been worked, and as it is the recipient of tailings from the richest mines in Little York township, the company are confident of large returns.

During the past year many mining companies in Nevada county have been compelled to "shut down" on account of the enormous expense required to prospect, and the failure of the rock to pay large returns. In one instance over \$44,000 was expended in wages alone. There are, it is estimated, 400 men out of employment in Grass Valley township alone.

25th: The present season, with abundance of water, has been peculiarly hard upon miners. In every locality ditches were broken, flumes carried away, the snow has been deep, and the extreme cold has frozen up the ditches.

Arbogast & Nichols, who are engaged in working a quartz ledge near Rough & Ready, struck a pocket last week. In a single pan full they took out between \$400

and \$500. It is stated that they have taken out very large sums every day since.

Gazette, Feb. 20th: We understand that the sulphuret works at Canada Hill, erected a year or two ago to work by the Rivot process, are to be rebuilt and entirely remodeled. The process has, it is said, been so improved that the sulphurets can be worked at a cost of \$12 per ton, saving the silver as well as the gold. We are informed that the castings and other machinery for the new works are now being manufactured at San Francisco, and the purpose is to have the works in operation early in the spring.

25th: The Dromedary Co. has just finished cleaning up a crushing of 375 tons of rock from their ledge, which restarted in the neighborhood of \$10,000.

Grass Valley *National*, Feb. 19th: The Empire Co. at Ophir Hill, have realized \$22,211 during the past 20 days, and have averaged \$1,124 a day for the past four months. They are starting to drift on the 7th level and find a good ledge in the hot-ton shaft in going down for the 8th level. By the 1st of November, the superintendent expects to have four levels in working. The superintendent came in this forenoon with three bars of gold weighing 110 lbs. Further improvements are to be added to the mill; a dry house and retorting and smelting works, probably also ten additional stamps.

Feb. 20th: The Homeward Bound Co. has struck the ledge at a depth of 100 ft. and the rock at that depth gives promise of a good margin for profit to the company.

Feb. 22d: Mr. Shurtliff, while specimen hunting yesterday, found a piece of quartz containing some \$40 in gold.

Grass Valley *Union*, Feb. 25th: The New York Hill Co. are running ahead with the ten stamps of their own mill, are putting in ten additional stamps, and employ 16 stamps of the "Rocky Bar" in crushing their rock.

EXCELSIOR.—Feb. 23d: Steve Venard, who has recently visited the eastern part of the country, furnishes us with some interesting items:

The town of Meadow Lake has a population at present of about 75 or 100 persons. The snow is ten feet deep, and but little business is being done.

The Empire Mining Co. is at work, and the ledge is yielding fine looking rock. The Lake or White Rock ledge is also yielding fine ore.

The Mohawk & Montreal mill has been running during the winter. The ledge is better defined than they have ever before had it, and the ore is of a higher grade.

Placer County.

Herald, Feb. 22d: The McGonigle, Perry & Co. claim, on the Black ledge, is still being worked night and day with 8-hour shifts. In consequence of the breaking of the pump, about ten days ago, the workmen have been employed on the upper levels. The shaft is about 85 ft. deep, rich ore having been struck at 54 ft.

On the Fred Mallet mine, the owners are hard at work, night and day, pumping out the shaft, preparatory to commencing work on the ledge. The shaft is now 50 ft. deep. At 30 ft. they drifted 30 ft. each way—easterly and westerly. In the eastern drift, it shows rich in pure virgin gold. They then sunk 20 ft. further, drifted easterly again, and cut the ledge at 5 ft. from the main shaft, showing equally rich.

We were shown last week a beautiful specimen taken from the ledge of the Opwood claim, about 30 ft. below the surface. The ledge is about 6 in. wide, and from present indications is believed to be very rich. This claim is in the Auburn district, about two miles from town.

Plumas County.

National, Feb. 15th: We learn that the mines in Spanish Ranch and Meadow Valley have almost entirely suspended operations during the last few weeks on account of extreme cold weather.

At Sawpit Flat, the American Co. are working twelve men, and are making from \$8 to \$12 per day to the hand. The Buckeye Co. are working seventeen men and are making from \$6 to \$8 per day to the hand. The Union Co. are working seven men and are making an average of \$7 per day to the hand. The New York, Eagle and Union Cos. are taking out pay dirt, but will not be able to wash up until the weather moderates so as to give them water.

Indian Valley Correspondence: The Crescent is not running as yet, only engaged in pumping the water out of their mine; will probably start in a few days. The Whitney, Caledonia, Indian Valley Mill, New York, Judkin & Kellogg's Mill and the Pennsylvania are all busy at work. The Lone Star is stopped by the cold weather. The Bull Frog by a cave in the tunnel.

Tuolumne County.

Sonora Democrat, Feb. 22d: Work on the Rawhide mine has been resumed, and men are now getting out ore, but we are informed that it will have to be shipped to Europe for proper metallurgical treatment, owing to its being combined with tellurium.

The "Crosses" mine, on Whisky Hill, has a 40-foot vein, and the poorest of the rock worth \$10 per ton. A 10-stamp mill is to be erected.

ARIZONA.

From the *Miner*, Feb. 1st: The new placer diggings, four miles south of Prescott, still continue to shell out pretty freely. During the past week, Andy Stanehrook took out, in one day, over one ounce of gold. Next day he panned out \$9.50. In five days he panned out the sum of \$60. Judge Brooks has taken out considerable money. In fact all who are at work in the diggings are doing well. A party of Mexicans took out in one day, recently, we are told, about a handful of coarse gold. The largest piece found last week, weighed \$8.50. Mr. Pillow on Sunday last, told us that other gulches in the vicinity prospect nearly as well as the one now being worked.

We have received several letters from Wickenburg, all of which speak in glowing terms of the Vulture mine and mill. Wickenburg & Smith are taking out very rich quartz. Mr. Smith has gone to Arizona City for helting, and as soon as he returns, the Wickenburg 5-stamp mill will be started.

The news from the mining districts adjacent to Prescott is favorable.

COLORADO.

Rocky Mountain *Herald*, Feb. 8th: Mining is progressing steadily in Gilpin, Clear Creek, and Boulder counties, despite the low thermometers. Our mountain exchanges are daily speaking of fine runs and fair prospects, discoveries and doings generally. * * * Mining matters in Boulder county are reported to be encouraging. Two new lodes are being developed near Boulder, the Ironsides and the Hog's Back.

The Argentine, one of the eight rich lodes owned by the Red, White and Blue Co. (made up of colored people) has a vein of argenteriferous galena, the highest assay of which was \$1,800 per ton, and the lowest \$350. It also contains a quartz vein, threaded with sulphurets of silver four ft. wide, assaying \$2,000 per ton. The company contemplates sending an agent East to sell stock. They have extracted a good quantity of silver by smelting.

Haskins and Dishrow are running the Peck mill in Upper Empire on surface ore from the Gold Dirt lode, and are making it pay. They have a 5-ft. crevice. Andrew Mason is running the Tennessee mill on ore from the Silver Mountain lode. This lode was worked out as was supposed, several years ago. It pays now between \$90 and \$100 per cord.

Mr. Irwin has commenced work on the Prince Alfred lode, in Spring Gulch. Mr. Whitcomb is running his mill on ore from the Irish Flag, for Fleming & Co. The last clean up yielded \$84 in gold to the cord. L. E. Bowman, with three other colored men, are at work on the J. M. Matelly lode. They have sunk a shaft 14 ft., and have over two ft. of ore. The ore prospects well.

The Smith & Parmelee shaft is now at a depth of 443 ft. A rich ledge of iron has been opened up, during the last few days. The Red Rock lode, owned by Messrs. Hough, Thompson & Thomas, is now being rapidly developed. A shaft has been sunk 75 ft., and the ore will assay from \$200 to \$400 per ton. The Leavenworth shaft is now about 97 ft. deep, and has about four ft. pay in the bottom. We learn, that on Saturday, a rich vein of sulphurets, was discovered in the bottom of the Tows lode. Burdick & Co., of Georgetown, have found a new lode on Brown Mountain, which has a crevice four ft. wide. The discovery is a short distance above the Brown lode. Work on the Baker mine, west of Argentine, is progressing rapidly.

Letter from Boulder, Jan. 25th: Ni-Wot mill, as well as Haswell & Henry's ten stamps, and the Long's Peak mill, are pounding away cheerily. Altogether the district is much more lively than during any previous winter.

James Creek holds its own in population, and work is going on regularly, though the recent cold weather has frozen the stream so that mills and arastras are now all idle. The Potosi, which was exclusively gold-bearing on the surface, is now, at the depth of 120 feet, running into a very rich silver ore. In fact, this is the history of all the lodes in the district as they become developed.

In Gold Hill district all is hustle and life. The Hoosier is being worked vigorously, and development only adds to its character for strength and richness. Works for reduction will be put up in the spring

on an extensive scale. Running parallel with the Hoosier, and within a distance of 200 ft., three other lodes of about the same size and character have been discovered. A monster lode—in places 50 ft. wide—runs from Gold Hill in a straight line towards Boulder City, finally splits up into spurs, and ends in the formation immediately west of the limestone. Just inside the hog's back, and within one mile of Boulder, six of these spurs have been discovered and are now being developed. Within three miles, the Stanton lode is being developed. The vein is six ft. wide at a depth of 10 ft. The Blossom has assayed \$120 to the ton. Cord of pay ore, that would yield \$120 to the ton have been thrown out already.

A ton of ore from the Hoosier has been taken to the mill of Crosby & Thompson for treatment. Heavy bets are taken on the yield.

Register: Mr. Miley, running the University Co's 10-stamp mill on ore from the Bates-Baxter claim, took up 46 ozs. last week, at the rate of 7 4-5 ozs. per cord. Mr. Cremer is working a fresh lode, just back of the Enreka foundry. He is making it pay. Martine & Co. contemplate building a furnace in connection with the amalgamating works. Mr. Kenyon is sinking a shaft on the Kingston lode in the Russell Gulch. He is down about 80 ft., and the crevice seems to be widening.

DACOTAH.

Denver Herald, Feb. 8th: News from the Sweetwater mines is more romantic than real. It is certain there is gold in abundance through the Wind River range, but doubtless not a whit richer or more plenty than in parts of the Colorado and New Mexico mountains. The ignis fatuus of distance and isolation only adds "enchantment to the view" of a vast class of miners. The Sweetwater mines are 200 miles north-east from Salt Lake City, 105 miles from the stage road via Green river, 280 miles from Cheyenne City via the Lander road and Fort Halleck, and 180 miles from Cheyenne City via the North Platte, Pass creek and railroad survey.

Territorial Enterprise, Feb. 21st: C. W. Tozer writes thus from Salt Lake: In relation to the Sweetwater mines, I can only say that all the information I can get is of the most favorable character. I find here several old Californians and Washoeites who have been in the mines. Many will start from here next week, and some few have already gone on. I shall, I think, start in two or three days.

There will doubtless be quite a rush of prospectors from this State to the Sweetwater mines as soon as it is known that the roads are open. The news of the mines received here is vague. There are plenty of assertions of a general nature in regard to the richness and extent of the new mines, yet none, so far as we know, have been able to give facts and localities. Nevertheless there will be a rush.

A gentleman who arrived in this city from Salt Lake a day or two since reports the discovery of some rich placer mines in the vicinity of Independence Rock. He said there was much talk of the new mines in Salt Lake when he left. The mines are north of Independence Rock, and consist, so far as explored, in gulch diggings. The gulches are narrow, the depth of gravel slight, and the pay principally on the bed-rock and in dust not coarser than blasting powder. Those who first struck the gulches are said to have made from \$5 to \$8 per day, with very rude mining apparatus.

The Austin correspondent of the Territorial Enterprise, quotes the following from a Rock Creek letter of Feb. 2d: "My view of this country are not extravagant. I know there are big reports on the outside, and several thousand men will be here this season, most of whom will be disappointed more or less. This belt has quite a number of quartz ledges, and many locations have been made, but I don't think one-seventieth part are worth the recording. Three or four large, well defined ledges can be traced for several miles, and if they prove half as rich by mill working as anticipated, this will be the best mining camp known at the present day. Our quartz here is all gold-bearing, but I am not competent to judge from a prospect of the rock how it should pay by mill process. As for placer or gulch mines, they are very limited, and but few of them will pay anything.

My advice to you and other friends is—don't come this year, unless you want to take chances on some wild excitement. A year from this the mine will be proved to some extent, and if good there is room for several thousands. Then, again, I will say if times are dull, and you are not making any money, I advise you to come, and the sooner the better, before the roads break up in the spring. It will be lively here this

summer—Austin and Virginia City over again in early days."

MONTANA.

Post, Feb. 8th: A company organized a short time since, will have a furnace erected at Brandon, Mill Creek, in a few weeks, having some 6,000 ft. of good galena ores on Wisconsin Creek, and another company was organized at Mill Creek on Saturday evening last, by Messrs. Hartneth, Bowers & Co. who have arranged to commence the erection of a furnace and buildings at once. These two furnaces will be near the old quartz mill, and have abundant water power with plenty of fuel convenient. The leads are situated on an average half a mile from the site of the furnaces and prospect rich, have from two to five feet crevices, and efficient galena to flux them. It is intended to have both in operation in three months. Parties have conveyed 1,100 ft. of quartz to the latter company, who will commence smelting on the Passama, Mayflower and Slider ores. Mr. Hartneth pronounces the Mill Creek district ores fully equal to those of Argentina.

We learn from the valley that the Gallatin mill is running. The Penwell Bros. mill it is stated, will be completed in two or three weeks. Cover & McAdow are putting some new castings in their mill at Bozeman and will be running again shortly.

Helena correspondence: I visited the Lee Mountain lode the other day. It is a solid vein of 18 ft. in width. The ore is argenteiferous galena, antimony and sulphurets, which changes as it goes down, the galena and antimony decreasing and giving place to ruby silver. To the left of the cut is a piece prepared, and the ore that has been taken out, about 500 tons, corded upon it. We noticed some pieces that we judged to weigh at least 1,500 lbs.

This lode, taken all in all, is the best developed and best defined that we have seen in the country. I next visited the Esmeralda lode. The cut is 14 ft. wide and 26 ft. high, and runs into the mountain 120 ft. At its end is a shaft 10 by 12 ft. and 66 ft. deep. At the bottom of the shaft, a drift has been run the entire distance of 15 ft. through solid quartz, and the east wall has not yet been reached. About 750 tons of very rich quartz has been taken out.

I was informed by a gentleman who is not in any way interested in the lode, that he had obtained specimens of the poorest and richest qualities of the quartz and had carefully prospected it. The poorest he found to yield at the rate of \$267, and the richest the fabulous sum of \$13,000 per ton.

Mr. Hendrie will erect a 15-stamp mill near the ledge early in the spring.

On the Mexicana lode in Quartz Gulch, they have a shaft 38 ft. deep, seven by ten, and a crevice eight feet three inches wide. One ounce of rock, in which gold could not be seen without a glass, when pulverized and panned out without quicksilver, yielded 30 cts. to the pan.

The last shipment of bullion from Flint Creek, by the St. Louis & Montana Mining Co., was in the vicinity of 6,000 ozs. It was the purest lot of silver bullion which has been turned out, the whole of the bars assaying .970 fine, being a little purer than the stamped American silver coin.

The Union mill cleaned up on last Saturday, over \$4,000 from their last week's run.

A new discovery of bar diggings lately made in McClellan Gulch, is said to be very rich, the lowest prospect got on the bed-rock being \$1.50 to the pan.

The I. X. L. Co's 18-stamp mill on last Wednesday, cleaned up 296 ozs. as the result of the last week's run.

NEVADA.

Esmeralda.

Aurora Union, Feb. 13th: A mill is to be erected upon the Holmes mine near Columbus. We learn that there are about 25 miners engaged in that locality taking out ore which will pay well by milling process, and all are confident that they will have good times next summer.

The Wirttemberg Co. at Castle Peak, is now driving a tunnel to cut the ledge at the depth of 250 ft. It is now in 125 ft. The Co. expect to have the tunnel completed by the time spring opens, when they design building a mill. The ledge has been sufficiently prospected to prove that a large quantity of ore can be easily obtained that will pay from \$40 to \$50 per ton for milling.

Reese River.

The Reville of Feb. 15th, corrects the erroneous statements which have been made in regard to Maj. Sherman's progress in the Florida mine, and says: According to the calculation of the Major, the Florida and other veins belonging to the Co., will be cut in the shaft at estimated depths; but none of them have been reached yet. The

shaft has not yet developed the "critter," but has yielded only the country rock. That it will reach the Florida and other ledges, besides blind veins of value, we have not the least doubt. We make these corrections out of regard for Major Sherman, who has an aversion to erroneous statements concerning his plans.

Same, 17th: We learn that the 10-stamp mill of the Old Dominion Co., which was accidentally burned twelve days ago, will be rebuilt immediately. The estimated cost does not exceed \$20,000.

18th: The mill of the Manhattan Co. was closed this morning for the purpose of repairing the main shaft. It will remain closed about four days.

Silver Bend Reporter, Feb. 15th: The Belmont Co's mill is pounding away incessantly, with excellent results. The Transylvania ledge from which the Co. is at present taking ore, never looked better than now, and from it we learn is now raised as rich mineral as ever was produced from any mine in the district.

The new mill of the Combination Co., at East Belmont, is producing large amounts of bullion daily. The ore battery is said to be yielding near \$100 per ton more than the estimate placed upon it on the dump.

The El Dorado South Co. this week sent to Austin seven tons of ore for reduction. The lot was in every respect equal to that previously shipped and which yielded \$267.67 per ton. In the mine a level is in progress from the incline southward upon the vein. It shows no diminution either in quantity or the quality of ore.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial Enterprise, Feb. 19th: A new boiler is being put in place in the Sunderland mill, Lower Gold Hill. As soon as the connections are made with the engine the mill will resume operations.

Preparations are being made to work a number of gold bearing quartz leads, in Devil's Gate district, this spring. Nearly all these leads will pay at the surface. The ore will be put through mills arranged after the California style. Pans will not be used—only copper plates and blankets.

Feb. 20th: It was rumored on the streets yesterday that a deposit of rich ore had just been cut in the Savage—upon the fourth level. We were unable to trace the rumor to any reliable source or to get any particulars.

Feb. 21st: Almost daily parties prospecting in this vicinity in the croppings of abandoned claims bring in very promising ore. As soon as the hills are completely bare of snow all the old claims in this city will be subjected to a thorough overhauling and doubtless some valuable deposits of ore hitherto unknown, will be found. Flowery, Silver Star, and Devil's Gate districts are the most promising for this kind of mining.

Feb. 22d: We yesterday saw at the office of E. Ruhling & Co., some very fine specimens of ore from the Overman mine—sulphurets tinged with carbonates of copper. One piece showed a considerable amount of native silver in thin leaves. The ore was taken out about 150 ft. below the surface.

Tresspass, Feb. 22d: The advance in Savage stock may be attributed to the cutting—most unexpectedly—of a fine body of ore which is yet undetermined. In the north drift fourth station, the ore is looking exceedingly well. In the south drift same station, the vein of ore has improved in appearance, and all the different levels of the mine are much improved. The usual quantity of ore is being mined and milled. In the Imperial, the west body of ore, mentioned last week, is opening up well. Work at the new shaft is as usual. In the Crown Point, the shaft has been retimbered, and next week the drift on the 800-ft. level will be continued. The new pump will soon be in readiness for labor. In the Overman, a fine body of ore has been developed in the south drift 360 ft. This body has been developed 12 ft. in width, and 18 ft. in height, but the entire size of the vein has not yet been determined, as the wall has not been reached. Ore is also extracted from the 400-ft. southeast drift, and here the body has widened and improved materially. Some of this bears free metal and is very rich. The other portions of the mine are looking well, and yield about 125 tons of ore per day.

Gold Hill News, Feb. 21st: We are credibly informed that Charley McWilliams has recently struck a rich lead in Slippery Gulch which assays rich right in the surface croppings.

NEW MEXICO.

Maxwell's Ranch correspondence of the Denver Herald, Feb. 8th: The weather and the water will not admit of actual mining at

Moreno, to amount to anything, short of June next, and my advice to one and all in your Territory is to keep out of here until spring. There is some little work doing here, however, this winter, where the parties are well provided for. Col. Henderson has just finished leasing, for the proprietor, Mr. L. B. Maxwell, 1,280 claims in the various gulches. The rent set on each claim (of 300 ft. by 300 ft.) is \$1 a month; the time ranges from one to ten years. So far, provisions are plenty and at reasonable prices. There are about 1,000 people in the various districts.

OREGON.

Jacksonville Sentinel, Feb. 15th: Mr. C. Nye called upon us this week, and reports that the mining interests on Foot's Creek are all frozen up. The same may be said of all the mining camps in the country.

A road is being made from the Occidental quartz mill to the Holman lead. It is the intention to proceed as fast as the rock can be transported to the mill to commence crushing. The mill has been carefully repaired, and the defective parts made new, so that it is almost certain that all the gold can be saved.

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MR. A. C. KNOX, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.
MR. C. F. RANCEY is our duly authorized agent for Sacramento County. Nov. 29, 1867.DR. L. G. YATES is our duly authorized traveling agent. July 6, 1867.
MR. A. B. BUTLER is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, Feb. 29, 1868.

Notices to Correspondents.

H. B., San Francisco.—The manufacture of beer is very possibly as ancient as that of wine. History carries the use of beer back to the time of the Egyptians; and the Chinese, to whom all new discoveries appear to have been old facts, might have drunk, even centuries before the Pharaohs existed, as now, liquor made from bruised barley and wheat. Herodotus, writing 400 years before the Christian era, says that the Egyptians had a wine made from barley. Aristotle speaks of its intoxicating qualities. Theophrastus calls it the "wine of barley." Tacitus notices beer as common with the Germans in his era, and Pliny speaks of it as made by the Spaniards, who called it *celia* or *ceria*, and the Gauls, who call it *cerevisia*—all these titles being evidently derived from Ceres, the divinity of grain, as the present name beer may be derived from the Latin *bibere*. Since the Christian era, Nubia and Abyssinia, benighted as they were and are, claimed kindred with European nations, through a common taste for the nut-brown liquid. The Japanese has his rice beer, and the Northman and the Dane reserve in their ideal heavens spaces for reservoirs of their favorite beverage—beer.

A SUBSCRIBER, Virginia City.—The word opaque applies only to substances through which light is wholly intransmissible, such as chalk, coal, iron, wood, etc. Such bodies as opal, some descriptions of crystalline limestone, as that variety of which statuary marble is composed, milky colored flints, agates, etc., which partially permit through their substance the transmission of light are termed semi-diaphanous. The term opaque would be improperly applied in the latter quoted instances.

MANUFACTURER, San Francisco.—The manufacture of oil-cloth carpets requires heavy and expensive machinery. The market here would hardly warrant its manufacture on this coast at present. The paint now usually employed, is composed largely of slate ground to an impalpable powder; various kinds of clay are also used for mixing with the oil, the whole forming a kind of mineral paint. The paint is laid on by machinery, the cloth passing between heavy rollers suitably prepared for that purpose.

MILLER, Sacramento.—We know of no better material than melted sulphur and sand, with which to fill the cavities in millstones. It should be poured in while hot. Those who have used it say that it answers the purpose admirably, and is as durable as any material which can be employed. The danger of using lead for such a purpose has been made most painfully apparent within the last two years, in several cases at the East, where death or lingering sickness has resulted therefrom.

FARMER, San José.—The origin of sweet corn is not, and probably never will be known. Like the other varieties of corn, it was cultivated by the aborigines of this continent before its settlement by Europeans. That is probably as far back as we shall ever be able to trace its history. There are many sub-varieties, the histories of which might be given.

FOSSIL.—We can give no information as to the nature of, or whether any inquiry whatever has been made by the Senate Committee on Mines, as to the present condition of the State Geological Survey. We presume that during the present week, a report of some kind will be made to the Senate.

Atomechanics.

This as yet mainly "conjectural" science is based upon the idea that there is but one chemical element; and that those simple substances which we now call elements,—not having as yet succeeded in reducing them to component parts,—differ from each other only in the number and arrangement of their atoms. This single element is named *pantogen*,—or "universal generator," its atoms are called *panatoms*. These atoms are all exactly equal; and consist, so to speak, of simple points of one primary matter.

The propounder of this theory is Gustav Hinrichs. The idea was conceived while he was a student in the Polytechnic School at Copenhagen, in 1855; and during the two succeeding years he communicated a memoir upon the subject to several European scientists and various academies. Papers were, moreover, published by him in reference to it, from time to time, up to 1866; but during the last year, 1867, a complete outline of the "science" was lithographed and published in the form of a large quarto; the text being transferred from the author's own hand-writing, and the numerous diagrams from his own drawings.

Hinrichs asserts that a marked analogy is perceptible in the steps of advance made by the two sciences, chemistry and astronomy; and that as astronomy has now become a mechanics of the celestial bodies, we may conclude that some general principle exists, which will transform chemistry into a mechanics of the atoms. As the hypothesis of universal gravitation is the basis of astronomy, so the hypothesis of pantogen is, with him, the basis of chemistry. According to his theory, the panatoms combine in different forms, determined by their number. Three must necessarily form an equilateral triangle, since in that relation only can they be in equilibrium. An addition of more atoms will make hexagons and other figures, divisible into triangles. These figures are classified, or arranged in orders, genera, and species. We are not sufficiently acquainted with the arrangement of the system to go into particulars in regard to it. Nor are we aware of the nature of the reasoning by which he attempts to demonstrate it. He does not pretend to claim that it is by any means yet perfect; and reminds us that those men who enunciate the greatest truths are those who are obliged to struggle with the greatest difficulties to obtain recognition.

There is, to most minds, a certain charm in such generalizations; they are, nevertheless, not science until they are demonstrated. What the new "science" may yet bring us to, it is impossible to say. Attempts have been made, of late, to classify certain rocks by the aid of the compound microscope. The "basic" and "acidic" rocks, for instance, are distinguished from each other by the different arrangement of the particles as determined by that instrument. There is no telling what may yet be done. Even Sir Humphrey Davy, one of the lights of the scientific world, declared that he was by no means prepared to assert that the transmutation of metals would not come time be accomplished. The *ignis fatuus* so long pursued by the alchemists may, after all, be no chimera; "who knows?"

The above was written after a reading of a brief and imperfect notice of Prof. Hinrichs' theory. Since it was put in type, we have received the January number of the *American Journal of Science and Arts*. From an editorial note therein, by Prof. J. D. Dana, we learn that in March last, Prof. H., who, it seems, is now in Iowa, sent a paper upon the subject for publication in that journal. Prof. Dana being totally incapacitated, by sickness, for editorial labor, placed the paper in the hands of an assistant, Prof. Barker, who reported it to him as purely speculative, and as based upon as-

sumption merely, without proof. Prof. B. moreover said that the ideas advanced bore no resemblance to certain known views of Prof. Dana himself in regard to the connection between the number of atoms of oxygen in a compound and its crystalline form,—and to the possibility that the polarity might be due to the accumulation of the positive and negative atoms at opposite ends of the molecule. The paper of Prof. Hinrichs being shown to Prof. Gibbs, the associate editor, he advised its return to the author;—which was done. A second paper from Prof. Hinrichs, accompanied with an angry note, was also returned. In July, Prof. H. published "Atom Mechanics;" and then, for the first time, Prof. Dana, on examination of a copy of the work, saw a slight coincidence, in one part, with his own idea, although much involved with other hypothetical views. This was after he had published his own paper. Soon after, Prof. H. made a charge of plagiarism against Prof. D.; who wrote him at once that he should with pleasure give him full credit for priority of publication in any points where on further examination he should find that he had anticipated him; and he in fact published a note in the next number of the *Journal*, admitting such coincidence and priority. Notwithstanding this, the charge was made public by Prof. H., and has since been reiterated, in spite of an indignant showing of its falsity by Prof. Dana. Prof. Barker adds, to the above named editorial note, a statement, corroborative of that of Prof. D.; further stating, that he does not remember to have seen anything in the original manuscript at all resembling those views which in "Atom Mechanics," as published, approximate to those of Prof. Dana;—and that if they did appear there, they were so covered up by fanciful analogies as to make no impression upon his mind.

From the foregoing, we infer the probability that there is a grain of truth at the bottom of the new theory, although the structure erected upon that slight foundation by an enthusiastic generalizer may be, at least as yet, in great part, mere unwarranted speculation. When a man of such acknowledged scientific merit as Prof. Dana conceives and publishes a hypothesis, it is worthy of attention. If, then, Prof. Hinrichs' views really exhibit, in any point, a coincidence with those of Prof. D., he also is worthy of attention; and if that coincidence should appear ascribable to "independent action in independent minds,"—then so far, at least, the credit belongs equally to each. There is no doubt that Prof. H. has carefully studied Prof. Dana's work on mineralogy, and derived therefrom much valuable information upon the subject of crystallography. This work was published in 1854; a year before Prof. Hinrichs' "discovery" (or invention) of pantogen.

FULL FILES OF THE SCIENTIFIC AMERICAN.—Inventors and others will be pleased to learn that the Mechanics' Institute, of this city, has just added to its library a full set of the *Scientific American*—including every issue of that valuable journal from its commencement to the present time. This series has been procured only with considerable difficulty, and was secured for the Institution by Mr. A. T. Dewey, one of the proprietors of this paper. This is said to be the only full edition of the *Scientific American* on the Pacific Coast. It has heretofore been much needed in this city, as a work of reference by our inventors and scientific men.

PATENT BUSINESS.—Eight applications for patents, and four caveats, will be forwarded to Washington by the steamer of to-day, from the MINING AND SCIENTIFIC PRESS PATENT AGENCY; besides one application for a foreign patent. The inventors of the Pacific coast are more active than those of any other section, containing an equal population, in the Union.

CALIFORNIA FEVER AGAIN BROKEN OUT. People are again waking up to the attractions of the Pacific El Dorado. According to the *New York World*, the departures for this coast during the last three months remind one of the early rush of the gold-seekers. One of the proprietors of the Press, now in the East, writes us by the last steamer, "Everybody is coming to California."

Why should it not be so? The inducements are far greater than ever before. California is now, *par excellence*, the land of homesteads and abundant breadstuffs. Gold-digging is a matter of secondary importance,—although our mines are by no means yet exhausted; for men now begin to appreciate the comparative certainty of a competence, which the wonderful richness of our soil promises to those who will till it. If, however, a man will dig for gold in these days, he can do so at the door of his own white cottage with green blinds and climbing vines,—instead of a forty-niner's hovel; and after his day's work, he can sit down, at a clean table, to a clean supper, prepared by the hand of a neat wife,—instead of going to work, tired as he is, to build his own fire, and fry his own greasy salt pork and leathery flap-jacks. The diseases which carried off so many of the first comers, and which were charged by *les miserables* to the "God-forsaken country,"—instead of to disappointment, and anxiety, and improper food, as they should have been,—are now almost unknown. Abundant supplies of the finest vegetables, and the choicest fruits, are to be had almost without price,—where once beans and dried apple were the chiefest luxuries. The climate is such and so various that every man can be suited, be he native of Maine or of Mississippi. The old folks at home can be visited at a week's notice as soon as the iron track, now so rapidly extending itself, is completed.

There is room enough;—and they will come. There is no mistaking the future of this golden State. The "star of promise," which, for one generation, has been steadily moving westward, now rests at last over California; and the "wise men" see it.

MR. WADSWORTH'S LECTURE.—The lecture on wine, silk, etc., on Wednesday evening, though rather thinly attended, owing to the bad weather, was listened to with great attention. Mr. W. was present at the Paris Exhibition, where he lost no opportunity to say a good word for this State. The California specimens of wine, of cocoons, and of hops, there shown, as compared with the best exhibit of the same from other countries, established beyond a doubt the certainty that we can beat the world in either product. The French Commissioners who shrugged their shoulders at the cane sugar wines of the Atlantic Coast, pronounced the California wines European. The silk men of Lyons, on the strength of six cocoons which Mr. W. had with him, spun by worms of Wilson Flint's raising, dined him, and wine him, and drove him all over the country. "They could not do too much for a man who had six such cocoons." The brewers all wanted samples of the California hops,—brought paper bags to fill with them, and sent all their friends with paper bags for the same purpose. Every large brewery in Europe obtained a sample, through an agent. The lecture was well worth listening to, and fully confirmed in their faith all believers in the future of California.

GREAT SALT LAKE.—It is said that the waters of the Great Salt Lake of Utah, rose last year three feet above their former level, and are still slowly rising. This lake drains an immense region, and has no visible outlet.

TO CORRESPONDENTS.—Two communications from "C. H. A.," and one from "A Practical Mechanic," will receive early attention.

Editorial Correspondence.

IMPROVEMENT IN BLASTING.

One of the most positive improvements lately adopted in the Hoosac Tunnel, in Massachusetts, and also in some of the copper mines of Michigan, is the use of the

ELECTRIC BATTERY

With patent exploders, the latter containing fulminating powder. The exploders, with the necessary insulated copper wire for forming connection with the battery, cost but a trifle more than first quality of fuse. They are placed in the center, instead of on top of the charge, and fire the powder so that its entire explosive power is obtained at once, increasing its effects. In addition to this, numerous charges are exploded simultaneously, combining, more or less, their united force against the strength of the rock. There is no mistaking that important advantages are thus derived, sufficient to warrant the belief that the practice will be introduced into most large blasting undertakings. The battery used is termed an ebonite battery. It is simple in construction, resembling in appearance a large lock about 8x12 inches. A vulcanized rubber friction wheel produces the electricity. When the wire connection is made with all the holes designed to be fired, a few revolutions are given to the crank, a small knob is pulled (completing the circuit), and all are instantly discharged. It is much surer and safer than the operation with mining fuse.

DR. EHRLHARDT'S PATENT SAFETY POWDER.

Practical tests of this new compound are being made on a large working scale. Its use in submarine blasting on Corwin rock, in Boston harbor, has been highly satisfactory. By the use of four cases, in six days 150 tons of rock was removed. The best of gunpowder had proved ineffectual. The powder is of a brownish color, fine as snuff; burns in open space as moderately as saltpeter. Entire absence of air is necessary to produce explosion; handled same as common gunpowder. Its power can be made from two to six times the force of gunpowder. Several years since, before Dr. Ehrhardt had perfected his powder, it was tested in the Hoosac Tunnel with decidedly economical results. But by some blunder an accident occurred, a life was sacrificed, and the powder rejected. If, in continued use, it proves favorable, our readers will be further informed. We are indebted to Gen. J. G. Foeter, Lieut.-Colonel of Engineers in Boston harbor, for information on the subject.

THE BLACK DIAMOND DRILL.

The Windsor (Vt.) Manufacturing Co. are making a diamond drill quite different from the annular or tube drill (which formed a large central core and proved a failure). The new one has a solid drill head, cutting the full size of the hole. This gives it greater strength and better facility for setting the diamonds so as to hold their position, with less liability to loosen. The diamonds used are dark, opaque, and imported for the purpose. They are worked by a small oscillating engine attached to the drill-carriage, and connected with a flexible supply tube. Two men can carry one. It is quickly adjusted for work. The proprietors state that after boring over 500 feet in granite, quartz, talo and marble, with one drill-head, the diamond points showed no wear. The Windsor Manufacturing Co., owners of the various patents under which the machines are made, will soon have one tried in the Hoosac Tunnel. We shall probably report the result, and in course of time give an illustration of the machine.

The Burleigh air drill (which will be noticed fully in an article on the Hoosac Tunnel) is worthy the consideration of Californians; as is also the new process for manufacturing nitro-glycerine, by Professor Mowbray, at the same tunnel.

A channelling machine, for cutting etone in marble and other quarries, which has been well tested by use, is another labor-

saving tool manufactured by the above named company. Engravings of both machines may be seen at our office.

WOOD SUBSTITUTED FOR PAPER-HANGING.

Parties in Boston are exhibiting sheets of wood shavings, or veneering, no thicker than heavy writing paper, as a substitute for wall paper. When fastened to the wall and properly finished, it appears rich and ornamental, showing the natural grain of the timber. Its manufacture is considered a success by those who have the matter in hand. Mr. Edward Jewett, of Rindge, N. H., has been experimenting in this direction for several years, and has invented and patented a machine which he thinks can be constructed so as to do the work satisfactorily. He is seeking funds at present to put it in operation.

[This substitute for paper hangings was noticed in our issue of the 15th inst.]

SHOE-PEGGING MACHINES

Are among the novelties to be seen in many of the boot and shoe manufacturing establishments in Massachusetts. A strip of birch wood four or five inches long, of the thickness of a shoe peg, its breadth the length of a peg, with one edge beveled to form the point of the peg, is introduced into the machine. The shoe is slipped into position, and a few turns of the crank punches the holes, splits the pegs, and drives them quicker than this sentence is read. At Mr. C. T. Sampson's factory, in North Adams, Mass., one machine will peg a shoe in eleven seconds, and turn out fifty-six pairs per hour.

Westfield, Mass., Feb. 4, 1868.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. LUTY, Secretary. Office, 305 Montgomery street, corner of Pine, San Francisco. 2v15

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. DR. BEERS & JESSUP, corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with PURE GOLD—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 16v14-1f

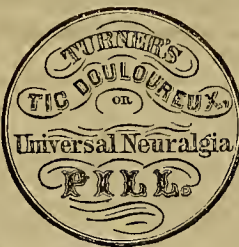
Miners, Visitors to mining districts, R. R. EMPLOYEES, and TRAVELERS generally, should insure against all ACCIDENTS in the Traveler's Life and Accident Insurance Company of Hartford before leaving the city.

WM. MCCOONALD & CO., Gen'l Agents, 7v16-g9p 121 Montgomery St., opp. Occidental Hotel.

Accidents.

The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required.

WM. MCCOONALD & CO., Gen'l Agents, 121 Montgomery st., San Francisco, Opposite Occidental Hotel. 2v15-3m



It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or THREE PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can always be used with

PERFECT SAFETY.

It has long been in constant use by many of our most EMINENT PHYSICIANS, who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	48 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by

TURNER & CO.,

Sole Proprietors,

9v16-5m

120 Tremont street, Boston, Mass.

NORTH AMERICA

Life Insurance Company.

Usual Restrictions on Occupation and Travel

ABOLISHED!

Policies of this Company are guaranteed by the State of New York, which is true of no other Company on this Coast.

The most Responsible and Liberal Company in the World!

J. A. EATON & CO.,

Managers Pacific Branch, 302 Montgomery st. 2v14n9p SAN FRANCISCO.

MECHANICS' INSTITUTE.

REGULAR TICKET.

Election, Monday, March 2, 1868, FROM 12 M. TO 9 P. M.

At Rooms of the Society, No. 29 Post st.

The undersigned Committee, appointed by the members of the Mechanics' Institute at its annual meeting, held February 6th, 1868, for the purpose of nominating officers for the ensuing year, have the pleasure of presenting to members for their approval the names of the following gentlemen.

In selecting your nominees, the Committee, in obedience to the voice of the members, have presented to each candidate for his endorsement the following questions, which have been fully approved by them:

1st—Economy and retrenchment in all matters relating to the affairs of the Institute and its proposed Industrial Exhibition.

2d—Individual and collective effort to afford instruction to junior members and apprentices by means of classes, lectures, increase of library and other available means.

3d—Faithful support to the principles of Eight Hour labor.

4th—To engender friendly and kindly feeling between members, especially in debates.

5th—Hearty and indefatigable co-operation in insuring success in the forthcoming Fair; voluntary services by Executive Committee, no member of which shall have direct or indirect interest in any pecuniary transaction arising therefrom.

W. B. EWER,
C. R. STEIGER,
N. W. SPAULDINO,
C. F. BASSETT.

For President,

A. S. HALLIDIE.....Wire Rope Manufacturer.

For Vice President,

JOSEPH WILCOX.....Master Builder.

For Treasurer,

HENRY L. DAVIS.....President Cat. Trust Company.

For Corresponding Secretary,

H. D. DUNN.....Commissioner of Emigration.

For Recording Secretary,

H. J. HOLMES.....Book-keeper with W. T. Garratt.

For Directors,

D. R. COLEMAN.....Shipsmith.

WM. C. PEASE.....Carpenter.

N. D. ARNOTT.....Vulcan Iron Works.

ABNER DOBLE.....Blacksmith.

DAVID FARQUHARSON.....Architect.

JACOB BROWNING.....Drayman.

JOHN HANCOCK.....Printer. 8v16d

"Best Best" Iron.

Round,

Square,

Flat,

Assorted Sizes.

NELSON & DOBLE,

319 and 321 Pine Street, San Francisco. 9v16f

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Mill and Manufacturing Co.

Cor. Mission and Fremont streets,

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Formerly James Brokaw, Proprietor.

This establishment is now under the control of a Joint Stock Company, composed of the old employees, is supplied with all the

Modern Improvements in Machinery,

And has the best facilities in the State for furnishing Buildings with every description of WOODWORK FINISH. All orders promptly and carefully attended to. 8v16-3m

ASA R. WELLS, Manager.

DRS. GRISWOLD & ALBERTSON,

Homoeopathic Surgeons and Accouchers,

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At their Office and Rooms, 662 Market st., cor. of Kearny, SAN FRANCISCO.

W. N. GRISWOLD, M. D.

J. A. ALBERTSON, M. D. 3v16-3m9p

Partner Wanted.

IN A SAWMILL, ABOUT GOING INTO OPERATION. The proprietor has a contract upon which there is a clear profit of ten thousand dollars within the next twelve months. Amount of money desirable, \$3,000. Address, F. M. C., care of Mining and Scientific Press; or inquire at the office of same, 505 Clay street. 8v16-2t

Builders' Insurance Company—
OFFICE IN THE BUILDING OF THE
CALIFORNIA SAVINGS BANK, California
street, one door from Sansome street.
FIRE AND MARINE INSURANCE. 10v14g9pqr

KNICKERBOCKER

Life Insurance Company,

OF NEW YORK.

Assets, - - over \$3,000,000.

Number of Policies Issued in 1867, 10,360.

Amount Insured, - - \$31,375,071 00.

POLICIES ISSUED AT ONCE,

On receipt of Application at the San Francisco Branch Office, without referring to the Home Office at New York.

Policies Paid in Gold Coin or Greenbacks, at the option of the person insuring.

[Extract from report of the Home Office, for Dec. 1867.]
"The Company's history for the past fifteen years shows favorably, and it stands out-day ranks it among first class Societies. It has carried out in good faith every contract made by it, never contesting a Southern claim during the war, while it is well known that many of our largest companies repudiated their Southern risks at the commencement of our National struggle, thereby increasing their assets. This honorable dealing of the Knickerbocker in the past, is a pledge of its future good faith."

Pacific Branch Office, 430 Montgomery Street, San Francisco.

GEO. T. SHIPLEY, M. D., Manager.

Agents wanted through city and State, and Pacific Coast. 6v16-3m9p

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FOR 1868!

MEUSSDORFFER'S

NEW STYLE OF

DRESS HATS

For Spring and Summer, will be introduced

On Saturday, February 29th,

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Rolling Mill and Forge Co.,

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Established for the Manufacture of

RAILROAD AND OTHER IRON

—AND—
Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames.

—ALSO—

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL and FORGE CO., Post Office, San Francisco, Cal., will receive prompt attention. The highest price paid for Scrap Iron. 9v14-3m9p

A Book for Every Miner and Scientific Man.

JUST PUBLISHED,

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Oold-Bearing Sulphurets, Arsenurets, and Oold and Silver Ores generally.

Price, - - - - \$7.50

A liberal discount to the Trade. For sale by the Booksellers.

Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,

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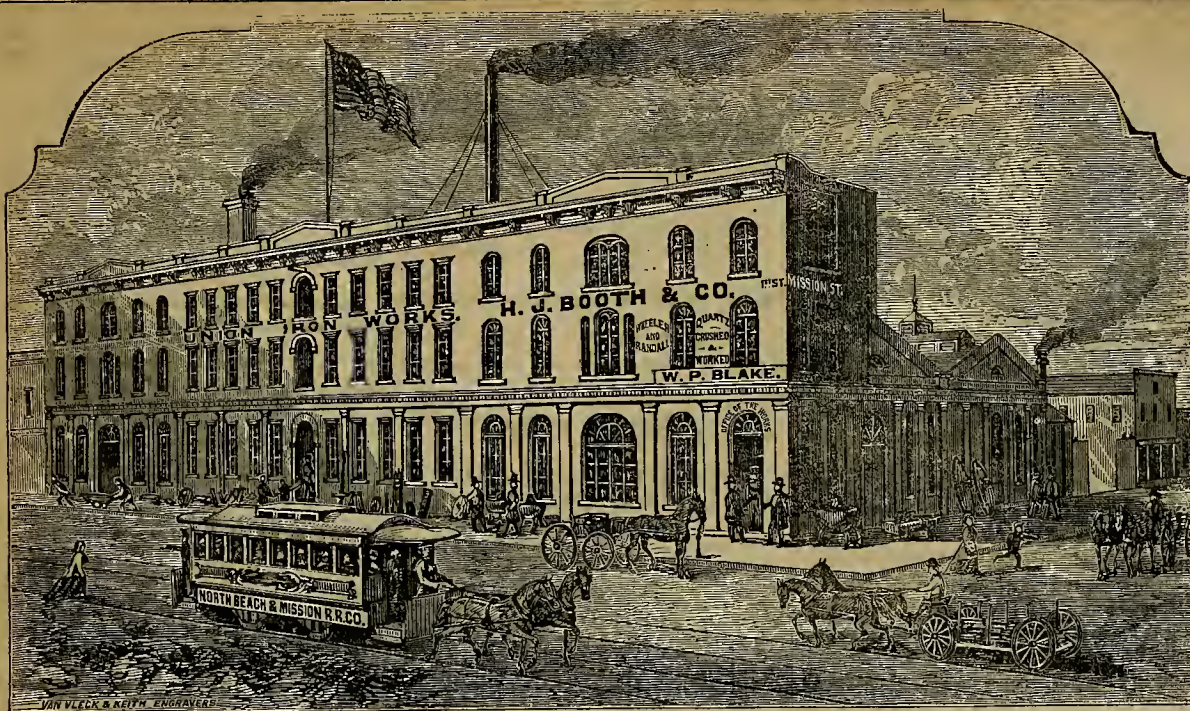
Wright's Picks for Sale.

THIRTY-FIVE DOZEN FLAT EYE SURFACE PICKS, with or without strops and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other description of PICKS for sale at REDUCED PRICES. Give me a call at 2411 Fremont street, San Francisco. JOHN WRIGHT. 8v16-3m

DR. FONDA'S

San Francisco Eye Infirmary.

Permanently established for the treatment of all diseases of the Eye. Dr. F. was for seventeen years principal of the Lafayette (Ind.) Eye Infirmary. F. W. FONDA, M. D., Surgeon in Charge. Office, 402 Montgomery street, opposite Wells, Fargo & Co's. 4v15-1y9p



Established in 1849--Corner First and Mission streets, San Francisco.

HAVING INCREASED OUR FACILITIES IN EVERY DEPARTMENT, WE ARE NOW prepared at the shortest notice and at the most reasonable rates, to furnish all kinds and description of Machinery, including Steam Engines, Quartz Mills, Mining Pumps of all kinds, Hoisting Gear, Gas Work, Laundry Machinery, Architectural and Ornamental Castings, Sugar Mills, Saw and Flour Mills, Water Wheels of all kinds, Hydraulic, Hay, Rag, screw and Drop Presses, Coining Machinery, Pile Drivers, Bark and Malt Mills, and all kinds of Castings.

ENGINES.—Marine Engines, Oscillating and Beam; Stern and Side Wheel Boats, Locomotives, Stationary Engines, Horizontal, Upright, Oscillating and Beam, from six to fifty inches diameter. Also, Scott & Eckart's Adjustable Cut-off Regulator—Best in use; W. A. Eckart's Balance Valve for Stationary Engines; Woodward's Patent Steam Pump and Fire Engine.

BOILERS.—Locomotive, Flat, Tubular, Upright, Cylinder and Cornish, and every variety of Boiler Work. All sizes of tubes and pipes for pumps.

PUMPS.—The Excelsior double-acting Force Pumps are manufactured by us. These very superior Pumps are warranted the best, and are fast replacing all other Force Pumps.

AMALGAMATING MACHINERY.—Wheeler & Randall's Improved Tractory Carve Pan, Zenos Wheeler's improved flat bottom pan, Beldin's pan, Yeatch's tubs, Prater's concentrators, Wakley's pans, Boers' pan, German Barrels, Arastri Gearing, Chile Mills, Settlers of all descriptions, Retorts of all sizes and shapes, for Silver and Gold, Portable Stamp Mills, Straight Batteries, for wood or iron frames, Dry Crushing Batteries, or machines with the latest improvements, every variety of Stamps, Mortars, Cams, Pans and Tubs. BLAKE'S PATENT QUARTZ CRUSHERS, of all sizes.

OIL BORING TOOLS AND MACHINERY.—Of the latest and most approved construction, made from drawings lately made by Prof. Blake at the oil wells in Pennsylvania. We have the facilities for working gold and silver quartz and other ores, to test their value, by the hundred weight or ton.

Russia Iron Screens, of all degrees of fineness and of all qualities of iron. All work done in the best manner at the lowest cash prices.

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H. J. BOOTH & CO.

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PALMER, KNOX & CO., Golden State Iron Works,

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MANUFACTURE ALL KINDS OF
MACHINERY,
TEAM ENGINES AND QUARTZ MILLS
DUNBAR'S IMPROVED
Self-Adjusting Piston Packing.

Requires no springs or screws; is always steam tight; without excessive friction, and never gets slack or leaky.

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NEW GRINDER AND AMALGAMATOR
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ANALGAMATOR AND SEPARATOR,
Knox's Amalgamators,
WITH PALMER'S PATENT STEAM CHEST.

Superior for working either GOLD OR SILVER ORES, and is the only Amalgamator that has stood the test of seven years' continual working.

Genuine White Iron Stamp Shoes and Dies
Having been engaged for the past ten years in quartz mining, and being conversant with all the improvements, either in Mining or Milling, we are prepared to furnish, at the shortest notice, the most perfect machinery for reducing ores, or saving either gold or silver. 13v10qy-1f

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Steam Engines, Boilers,

SAW AND CRIST MILLS,

MINING MACHINERY, WROUGHT IRON SHUTTER WORK, AND BLACKSMITHING IN GENERAL.

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CROSS' PATENT BOILER FEEDER,

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And all kinds of Mining Machinery.

Also, Hay and Wine Presses made and repaired with neatness, durability and dispatch.

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Foundry and Machine Shop, STOCKTON, CAL.

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Mining and Irrigating Pumps, Car Wheels, Derrick Irons, Horse Fronts, Iron Fencing, Balcony Rollings, etc., at San Francisco prices. Orders solicited and promptly executed. 13v13-1y

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Wine, Cider, Cotton and Tobacco Presses of the latest Improved Patterns.

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Of all sizes, constantly on hand; Quartz Mill Shoes and Dies warranted to be made of the best white iron.

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MACHINERY, OF ALL DESCRIPTIONS
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ALL KINDS OF Brass, Composition, Zinc, and Spabbitt Metal Castings, Brass Ship Work of all kinds, Spikes, Sheathing Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and Gongs of superior tone. All kinds of Cocks and Valves, Hydraulic Pipes and Nozzles, and Hose Couplings and Connections of all sizes and patterns, furnished with dispatch.

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STEAM ENGINES,

Quartz, Flour and Saw Mills,
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N. E. corner of Tehama and Fremont streets, above Howard street, San Francisco. 3-qy

JOHN LOCHHEAD'S Steam Engine Works,

Beale street, near Mission, San Francisco.

STEAM ENGINES OF EVERY DESCRIPTION BUILT to order—Marine, Stationary, or Locomotive.

HOISTING AND PUMPING ENGINES,

PORTABLE ENGINES, OF ALL SIZES,
DONKEY PUMPS, Etc., Etc., Etc.

The attention of the parties engaged in shipping or inland navigation is called to the

Superior Workmanship

of Mr. LOCHHEAD, who has been in the business in San Francisco for the last fourteen years, and enjoys the reputation of having built ONE HUNDRED AND SEVENTEEN STEAM ENGINES

Screw Propellers of all kinds and Steam Boat Machinery generally, made to order, and warranted to give perfect satisfaction in every particular. 25v12-3m

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MARINE ENGINES,
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All kinds of Ship-smithing and Mill work manufactured to order. Jobbing of every description promptly attended to. All work done guaranteed. 13v14-1y

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TOOL AND FILE FACTORY.

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No. 38 Fremont street, between Market and Mission, S. F. Job Grinding and Polishing done at shortest notice.

Special premium awarded at the last State Fair, Sacramento. 4v15-qy

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LINCOLN IRON WORKS,

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STEAM ENGINES,

Flour and Sawmills, and MACHINERY of all descriptions made and repaired at shortest notice.

Particular attention paid to repairing Reynold's Cut-off 5v15qr

NITRO-GLYCERINE AND GUNPOWDER.—

Webb & Co., the English representatives of Mr. Nobel, write thus to the London Mining Journal, of January 4th, in reference to the comparative safety of the use of these two explosive agents:

The utility of blasting oil is proved by the increasing demand, and by the fact that in some quarries the men, who pay for it themselves, make their bargains dependent on a supply being guaranteed by the quarry proprietor. As to the dangerous character of the article, tons are annually used in this neighborhood, and a larger amount is expended on it in some quarries than on gunpowder; and, though accidents are constantly occurring from the use of gunpowder, we have heard of two only arising from nitro-glycerine, and these were occasioned by a total disregard of the printed rules laid down for its use.

In the quarries with which we are immediately connected, two fearful accidents have occurred from the use of gunpowder within the last five months. In one case a spark from a match fell on some loose grains, which served as a train, and fired the blast before the man had time to get away; and in the other, a quarryman of great experience, in attempting to remove the tamping from a hole after a misfire, was blown up. Last week, only, we had two misfires at the same time, and in the same tunnel, in holes, one of which was charged with gun-cotton and the other with nitro-glycerine. The gun-cotton was, in accordance with the directions of the manufacturers, abandoned. It was too dangerous to attempt to recover it. We lost the man's labor in drilling the hole, and the charge itself, and had to prepare another blast in a less suitable position. In the case of the nitro-glycerine, we simply removed the defective fuse, and substituted another, passing the percussion cap through the water tamping, without the slightest risk or difficulty, and fired the blast, which did its work effectually. With such experience, and numerous other instances constantly brought to our attention by the managers of other quarries, we are justified in our assertion that nitro-glycerine is not so dangerous as either gun-cotton or gunpowder, if ordinary care be observed in its use.

After some remarks upon the late Newcastle accident, they go on to say:

If persons using blasting compounds, no matter whether gunpowder, gun cotton, or nitro-glycerine, will act in open defiance of all rules for their protection, accidents must occur, and they must take the consequences; but to prohibit the use of such compounds is impossible. We cannot stand still while our neighbors avail themselves of modern improvements.

THE SUEZ CANAL.—There is every reason to suppose that the great ship canal for the passage of vessels of the largest size, between the Mediterranean and the Red Sea, will be completed next year at the specified time. An English engineer has given his opinion to that effect. This great work will revolutionize commerce and reduce the distance between Europe and the East more than half, with a corresponding diminution of expenses. It will also considerably reduce the distance between New York and the East, although its importance to America will be somewhat diminished by the completion of the Pacific Railroad. It is the greatest work of Louis Napoleon's reign, for to him belongs the credit of sustaining the persevering efforts of M. Lesseps, the celebrated engineer. Light-draught steam tugs can already pass from Port Said on the Mediterranean to Suez on the Red Sea. A regular monthly service of twenty-four of these vessels has been established between the two ports, and merchandise to the amount of 1,000 tons a day can be transported. The transport for the entire distance of 100 miles occupies four days, in consequence of the obstacles interposed by the steam dredges that are excavating the channel for large ships. No break of bulk takes place. This alone is an important achievement, and goes far to warrant the most confident anticipations of the ultimate success of all the original plans of this great work.

PORCELAIN GLASS is now manufactured in New Bedford, Mass., for photographic plates. The glass is first blown into hollow cylinders, four feet long; it is then cut longitudinally, flattened in a furnace, and cut into plates of the required size.

Japanning!

EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS OF Hardware and Carriage Work. Damaged Goods re-Japanned; Sewing Machines Japanned and Ornamented. 513 Fourth Street, between Bryant and Welch, San Francisco. 5v16-3m

N. A. BELL & CO., Prop'rs.

A MUSEUM OF FIREARMS.—An establishment has lately been founded in London, the object of which is the collection and exhibition of specimens of every known principle and system applied to guns, rifles, carbines, pistols, and all other small arms; also samples of all explosive compounds, projectiles, cartridges, cartridge-cases, cartridge machines, wadding, etc., with the accessories and implements used. A shooting range is attached to the establishment for the trial of small arms and projectiles, and is provided with instruments and appliances for ascertaining what is necessary to the perfection of really useful and efficient weapons. One of the adjuncts is to be a library, which will embrace the principal standard works on firearms, projectiles and explosives, and also specifications of patents for firearms, and copies of those journals which more especially devote their pages to these subjects.

ANTHRACITE.—Anthracite coal was introduced into Philadelphia in 1822 by a Mr. George Shoemaker, who brought it from Schuylkill region, Pa. At the place now known as the Centreville mines, he loaded nine wagons with this coal, and carried it to Philadelphia. With great difficulty he succeeded in selling two loads, and the other seven he gave away—not being able to persuade the people of the value of the new fuel. Now Pennsylvania produces over 10,000,000 tons of coal per year.

THE GOLDEN ERA.

Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, **THE GOLDEN ERA** is universally regarded as a Literary and Family journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

THE GOLDEN ERA

Is the most universally popular of all the Weekly journals. It presents forty-eight columns, containing the greatest possible variety of Valuable and Entertaining, Original and Selected matter. It is a welcome guest in Cottage and Cabin; the favorite at the fireside in city and country; the most useful, agreeable and altogether desirable publication for California readers and their kindred and friends in the Atlantic States, Europe and elsewhere. Every household in the mountains and valleys, the cities, towns and mining camps of California, and throughout the Pacific States and Territories, should receive and welcome **THE GOLDEN ERA** as a regular weekly visitor. Inspired with the genius of the age, it is progressive, and aims not so much at distinction as a newspaper, as at honorable success in its capacity of a great Moralizing and Improving Influence. Exercising a positive power for good, and wielding a permanent influence, many able and eminent writers choose its columns as a means of communicating with the public. No effort will be spared to make it a thoroughly California newspaper, and worthy of the support of all classes of our citizens.

Rates of Subscription:

(Invariably in advance.)

One year.....\$5.00 Six months.....\$3.00
Three months.....\$2.00

TERMS TO CLUBS:

Three copies one year.....\$12.00
Five copies one year.....18.00
Ten copies one year.....35.00

An extra copy free for one year to the person sending a club of ten subscribers.

Send money to our office in registered letter, or by Express, Address,

BROOKS & CAMP,
San Francisco.

SOMETHING NEW AND GOOD!

TRY IT!
PRESERVED COFFEE,

PREPARED FROM

THE BEST OLD GOVERNMENT

JAVA COFFEE,

Condensed in the form of a Paste, by a process patented September 3d, 1867. One ounce equal to two of the best Ground Coffee, and suitable for any gentleman's table. Preserves its strength and flavor without deterioration in any climate, and without regard to length of time.

If you want Chickory, apply it yourself.
Give our Coffee a trial, and if it is not fifty per cent cheaper and better than any other, we will return your money.

FRANK SILVER & CO.,
No. 10 Stevenson street, near First,
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100,000 Lives Lost Yearly from the Use of Tobacco.

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The Cleanest Burning and Most Economical Fuel on the Coast.

Sold by all dealers in this city and Oakland.
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A. de LEO de LAGUNA. [10v15-5m]

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H & L Axle Grease,

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It is the only reliable article

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Black Diamond, in 1 lb. canisters.
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ESTABLISHED

[MAY, 1866.]

VOLUME SIXTEEN

-OF THE-

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COMMENCING JANUARY, 1868.
DEWEY & CO., Publishers.

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On all kinds of Ores, and particular attention

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On the 10th, 18th and 30th of each month that has

30 days.

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31 days.

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Atlantic Co.'s steamer for St. Nazaire, and English steamer

for South America.

Departure of 10th is expected to connect with English

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The following Steamships will be dispatched on dates as

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An experienced Surgeon on board. Medicine and attend

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Aqua Ammonia,

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Acids Chemically Pure,

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AND CHEMICALS OF ALL KINDS,

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Have in store a large assortment of the following articles, which they offer

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Bar and Plate Iron,

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Are manufacturing at the

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LEAD PIPE AND SHOT WORKS

Corner of Howard and First Streets,

LEAD PIPE, SHOT, SHEET AND BAR
LEAD.

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IN THE

Chlorination Process!

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CHLORINATION PROCESS,

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BARREL AND KEG COMPANY.

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For supplies of such stock as may be required. Will also contract for

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Of different kinds, delivered here, or at any shipping point in the Interior, or upon the Coast.

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Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

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VARNEY'S
PATENT AMALGAMATOR.

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so grandly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

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With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

San Francisco, Aug. 23, 1887.

Pacific Iron Works.

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PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

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DR. BEERS' PATENT

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THE ATTENTION OF QUARTZ, HYDRAULIC AND Placer Miners is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this loss alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address

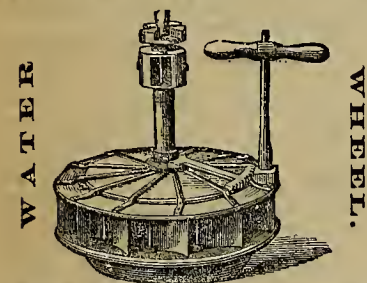
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LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALED AND UNRIVALED in the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

California Representatives—E. Stetson, Poisson; O. Simmons, Oakland (Mill at Clear Lake); Norman Coyette, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular, to

KNAPP & GRANT, Agents for California.

26x13-1yq 310 Washington street, San Francisco

NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possess many advantages over the common Hoist—viz: Greater strength; less danger in working, as goods require no slinging or landing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.

By JOSEPH MOORE, President.

2x15 1st JOSEPH MOORE.

HUNGERFORD'S

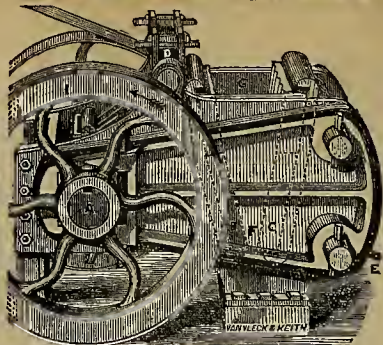
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Ooss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

2x15 1st MORRAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, \$4000

No. 2—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour..... 850

No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour..... 1,200

EXPLANATION OF THE ABOVE ENGINES.

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 24, 1885.

JAMES BRODIE, Esq., San Francisco: My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,

R. P. JOHNSON, Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED OERMAN AMALGAMATOR BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1884. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved Oerman Barrel, for a longer term than twelve months. All persons desirous of compromising, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1885.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

For drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1885.

JAMES BRODIE, Fulton Foundry, or CHARLES RADOLPH, Express Building, 402 Montgomery street, San Francisco.

12x13 1st

C. F. TRAVIS,

Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

PORTABLE

MILLS.

—

Agent for

Dufour & Co's

Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt; Mill-Stones Balanced with Fellenbaum's Patent Balance, or which I am sole Proprietor for California, Oregon, and Washington Territory.

109 Mission street, San Francisco.

5x16 1st

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Elson Bros. Planter Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

6x16 3m

PATTINSON'S

HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

7x15 4y THOMAS PATTINSON

To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.

PARTIES WISHING TO PURCHASE WILL SAVE 20 per cent. by calling at HOWLAND'S SAME PLACE. No. 24 California street, San Francisco. 2x15 3m

THE CELEBRATED
Self Generating Portable
Gas Lamp.

Directions for Use.

Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn off the tap and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained till the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vise and the burner screwed off. The burnt cotton must then be withdrawn, and a fresh piece of stout cotton, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

Manufactured solely by JOHN J. HUCKS, original proprietor. Factory, North Beach, San Francisco; and for sale by his agents in every city and town throughout the State.

18x14 3m-5

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG, 8x13-1y Stove Store, No. 125 Clay street, below Davis.

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1886.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other materials crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER, 14x14 1st Agents for the Pacific Coast.

PACIFIC

FILE, REAPER AND MOWER SECTION

Manufactory,

No. 53 Beale St., bet. Market and Mission,

SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.

2x15 3m-5 DURNING & KENNEY, Proprietors.

A FULL ASSORTMENT OF

TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

—ALSO—

Steam Gauges, a general assortment of

Hardware, Cutlery, and

MECHANICS' TOOLS,

By CHAS. OTTO & CO.,

2x15 3m-5 312 Bush street, San Francisco.

Steam Pumps,

FOR DRAINING MINES OR ELEVATING WATER TO ANY HEIGHT.

PICKERING'S GOVERNORS

For Steam Engines.

Giffard's Injectors,

For Feeding Boilers.

STODDART'S IRON WORKS,

Beale Street, San Francisco.

2x12 3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,

Etc., Shear, Spring, Oerman, Plover, Bilster and Toe Calk

Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks,

Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

319 and 321 Pine Street,

Between Montgomery and Sansome, San Francisco. 10x14 4m

Wood Tin in Place.

At the late annual meeting of the Miners' Association of Cornwall and Devonshire, England, Mr. G. M. Henry read a paper on the occurrence of wood tin at the Great Wheal Vor mine, from which we extract as follows:

It will doubtless be interesting to the members of the Miners' Association of Cornwall and Devon to learn that wood tin has been raised from a stope below the 162-fathom level on the Wheal Metal lode of the Great Wheal Vor United Mines, near Helston. Wood tin, so called from its woody appearance, was supposed by some at one time to occur only with stream tin. Wood tin has, however, been raised, and some good specimens preserved, from lodes in the neighborhood of St. Agnes, viz: Wheal Coates, Wheal Coit, and Wheal Trevaunance. It has also been found in mines at Giumear and at Sancreed; but I cannot find that it was ever discovered before in any other mines in the vicinity of Helston. There is a peculiarity about the wood tin raised from Wheal Vor; for it not only resembles wood, but assumes a uniform or kidney shape, and also occurs in large blisters similar to the blistered copper so commonly found in Cornwall.

No doubt many persons will remember hearing of an extraordinary deposit of tin in Wheal Metal, and of a winze which was valued at £500 per fathom by the agent of the mine. This winze was sunk below the 162-fathom level, nine feet by twelve feet. The lode itself in this winze was about six feet wide, and branches and floors of tin were carried with the other three feet, still leaving branches and floors bearing away north. It was a few fathoms west of this winze, and about four fathoms below the 162-level, that we discovered the wood tin. The lode and branches at this point are being stoped for a width of twenty feet, and the whole is worth fully £1,000 per fathom. The lode itself is six feet wide, and worth £600 per fathom. The wood tin is found in one part of the lode in this stope, mixed up with ordinary crystallized tinstone, such as we have been raising throughout the mine. Specimens of tinstone with impressions of the crystals of some other mineral have been obtained from the lode in the same stope, and are found mixed with the wood tin. In this part of the mine we have had a good deal of chlorite, chalcodony, dolomite, and feldspar, with a very peculiar form of mundic. It is strange that the occurrence of wood tin should be limited to this part of Wheal Metal.

EL DORADO COUNTY.—A Placerville letter to the *Amador Dispatch* of Feb. 22d, says: The placer diggings here have been exhausted only so far as came within the reach of water. There has never been but one ditch in this region, and the auriferous ground coming within its influence has doubtless been well washed out—but there are thousands and thousands of acres of auriferous soil (and probably as rich as ever worked hitherto) around the town of Placerville. * * * Now, it appears that a resident of this place has for years had a charter or franchise for the making of a ditch from Silver Lake, which would be the means, if constructed, of laying bare untold wealth. * * * This person has had the offer of the labor of hundreds of miners to complete the ditch—they proposing to take pay in water, and still he refuses to go on. Moreover, we are told that capitalists offered to proceed with and finish this work, yet he refuses their aid unless he has the controlling power in his hands. Here is a vast auriferous region absolutely within the power of one man. * * * It is to be hoped that this individual may be brought to his senses, and that speedily,—if we have stated matters correctly, and our information has been obtained from gentlemen of the highest respectability.

ECONOMICAL GOLD MINING.—Mr. Arthur Deane, the consulting engineer of the Vigra and Clogau Gold Mine Company, states in his last annual report that that company has realized a profit of \$2,500 for the year's operations, on quartz that averaged only 1 dw. 17 grs. per ton. The mine is of but limited capacity.

The St. John del Rey, an English company operating in Brazil, have been for some years dividing about \$500,000 annually, on rock that averages only from five-eighths to three-fourths of an ounce per ton.

HINTS FOR GAS CONSUMERS.—The following is condensed from the *American Gas Light Journal*:

It is a common occurrence for consumers who have not given the subject attention, how remarkably the light derived from gas is reduced by improperly constructed burners, or where the pressure on the flame is unsuitably adjusted.

It would be difficult to convince those who have not given the subject attention, how remarkably the light derived from gas is reduced by improperly constructed burners, or where the pressure on the flame is unsuitably adjusted.

The most important requisites for good burners are that the orifices should be perfectly regular, and of proper size to permit the gas to issue with a very low pressure. If the orifices are too small, a high pressure is required to expel the gas, and the light is diminished just in proportion to the increased pressure. In such burners the flame will have a bluish tinge, and the lower part will be of deep blue color. As an example: An argand of gas at one-tenth pressure, yielding a light of twelve candles, will, if the orifices are reduced to pass the same amount of gas per hour at five-tenths pressure, give the light of six candles—a loss of fifty per cent.

Again:—It is a mistake to suppose that the amount of light obtained will be in proportion to the quantity of gas issuing from the burner. There is a particular point in the consumption of any class of burners where the maximum of light is derived, and any deviation from this entails loss.

As an example, if an argand-burner, consuming five feet per hour, giving the light of twelve candles, be reduced, so that only three-fourths of that quantity is burned, then the light, instead of being equal to nine candles, the theoretical proportion, will be equal to that of six only. This reduction may be continued with even greater proportionate losses. A five-foot bat-wing or fish-tail burner, will give a maximum of light in proportion to the gas consumed, compared with any less sized burner, and it will be found in practice that the larger sized burners are the most economical.

The large size give as high as 200 or 300 per cent. advantage in light as compared with the smallest sizes.

As an example, the bat-wing burner, consuming two feet per hour gives the light of two and a quarter candles only, while a burner consuming seven and a half feet per hour gives the light of twenty-two candles, the pressure being uniformly four-tenths of an inch.

The knowledge of these facts is of importance to the consumer, who may, in his endeavor to economize, obtain results directly opposite to his anticipations. It is more economical to have one good large gas light than several small ones.

NEW COMFORTS FOR RAILROAD TRAVELERS.—A novelty in railroad travel is the introduction of family coaches, or cars, on the line between New York and Chicago. These coaches are so arranged as to accommodate families with the privacy of a hotel. Each apartment can be arranged at night to accommodate comfortably six passengers, and during the day afford all the comforts of a first-class drawing-room. Each car is supplied with the best improved amusements, which connect each room with the servants' apartments. Passengers have only to touch the bell to summon servants, who accompany each car.

"The Excellent"

Will not repair broken limbs nor leaky roofs; but it will quiet the nervous and brace up the weak. It will give more comfort to those suffering from dyspepsia or indigestion than any preparation you ever tasted or heard of. The first physicians use it, and it is made by

HARRY & PATEN,
8v16 3m 413 Montgomery street, San Francisco.

To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS' EXPERIENCE IN MINING AND DOING BUSINESS CONNECTED WITH MINING OPERATIONS, OFFERS HIS SERVICES TO PARTIES WISHING TO PURCHASE MINES, TO EXAMINE AND REPORT UPON THEM, TO BUY, REPORT UPON THE TITLES OF ANY MINE OFFERED FOR SALE, AND TO TRANSACT ANY BUSINESS CONNECTED WITH MINING OPERATIONS IN THIS DISTRICT. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address: **JAMES DELAVAN,** 4v16 1f Lone Pine, Inyo Co., Cal.

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL ASSORTMENT OF FIRE-BRICK, FIRE-CLAY, FIRE-DUG AND TILES OF DIFFERENT SIZES. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice. 7v16 6m **H. T. HOLMES.**

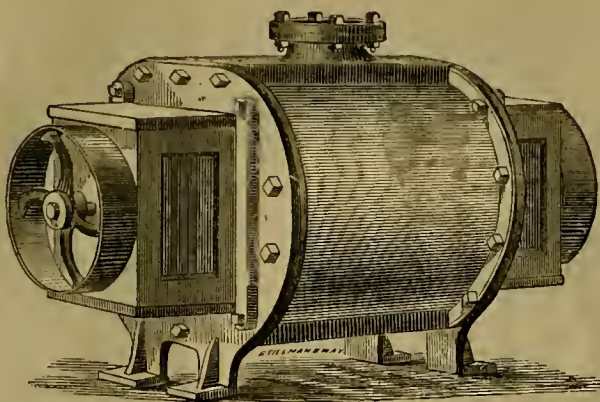
Galena Wanted.

50 TONS OF PURE GALENA, DELIVERED IN SAN FRANCISCO. Address, **WM. AYRES,** San Francisco Post Office. 8v16 1f

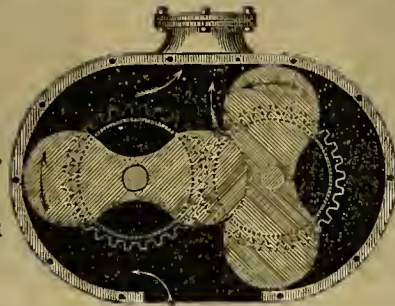
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1804; July 24, 1866; and Oct. 9, 1860.

Awarded the First Premium at the Paris Exposition.



ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places. CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

4v16 3m

KEEP, BLAKE & CO.,
Globe Iron Works, Stockton, Cal.

WE ARE NOW OFFERING OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of
ALL THE LATEST STYLES
BOTH OF MATERIAL AND FINISH.

A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.
J. R. MEAD & CO.,
8v10 Car. of Washington and Sansome streets

International Hotel,
JACKSON STREET.
BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT order for the accommodation of guests. Persons seeking comfort and economy will find this the best Hotel in the city to stop at. The Beds are now in good order, and the Rooms well ventilated. The Tables will always be supplied with the best in the market.

Prices varying from \$1.50 to \$2 per day for Board and Room.
FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

Teams belonging to the House will be in attendance at all the boats and cars to convey passengers to the House FREE OF CHARGE, and to any part of the city for 50 cents. 2v12 **F. E. WEYGANT, Proprietor.**

A FULL ASSORTMENT OF
MACHINE SOREWS AND TAPS,
Constantly on hand and for sale by
CHAS OTTO & CO.,
2v15 3m 312 Bush street.

A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 2v15 3m

The American Spring Bed.

THIS BED, NOW SO POPULAR IN THE EASTERN and Western States, was patented August, 1864. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines elegance with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 23 Post street, San Francisco. 8v16 3m



THE UNDERSIGNED, HAVING BEEN APPOINTED Sole Agent for the Pacific Coast for the sale of RO-PER'S BREECH-LOADING SHOT GUN, which discharges four shots in two seconds, circulars will be furnished by applying to or addressing
HENRY ETEL,
111 Second street.
Or Lock Box 1172 P. O., San Francisco. 18v15 2m 6m

CARD.

THE UNDERSIGNED, SINCE DISPOSING OF HIS Gallery on Montgomery street, has seldom been in the street without being asked where the best photographs were taken. Now, for the benefit of his friends and the public generally, he would recommend them to go to the COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY, No. 524 Kearny street, now owned and occupied by Messrs. HALSEY & SCRIPTURE. Both of these gentlemen are professional photographic artists—one of them having been in the business more than twenty years—and cannot be surpassed by any one in the State. Persons wishing photographs taken will do well to give them a call. The above named gallery is one of the finest and most convenient in San Francisco, it being situated on the second floor, and its proprietors are the most accommodating and gentlemanly men in the business. **JAMES WISE, Portrait Painter.** N. B.—Prices as low as at any other Gallery in the city. **Solar Printing for the Trade.** Also Stereoscopic Views of California Scenery, at wholesale and retail, at the Cosmopolitan Art and Photographic Gallery, No. 524 Kearny street. 7v16 3m **HALSEY & SCRIPTURE, Proprietors.**

HAYWARD & COLEMAN,

IMPORTERS AND REFINERS

Illuminating, Lubricating,

PAINT OILS!

CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR, TANNERS', NEATSFOOT, BOILED AND RAW LINED, CASTOR AND CHINA NUT.

SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of Mill owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off. A sample can of our Paraffine Oil will be forwarded an application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!

An elegant and complete assortment on hand. 18v13 3m 414 Front street, San Francisco.

Metallurgy.

BOALT & STETEFELDT.

Metallurgists and Mining Engineers

AUSTIN, NEVADA.

Western Branch of ADELBERG & RAYMOND, No. 90 Broadway, New York. 11v11

S. W. MATHEW, J. H. TIEMANN.

MAYNARD & TIEMANN,

Mining Engineers and Metallurgists,

240 Pearl street, New York.

CENTRAL CITY, COLORADO.

G. W. STRONG,

ASSAYER AND WORKER OF ORES,
SAN FRANCISCO FOUNDRY.

Fremont street, near Mission, San Francisco.

Highest price paid for choice lots of Ores, Sulphurets, Assay Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms. 14v16 6m

Parties desirous of Taking

A COURSE OF INSTRUCTION

CHEMICAL ANALYSIS,

THE ASSAY OF ORES,

And the Use of the Blow-pipe,

OR ANY PART OF SUCH COURSE,

May apply at this Office.

Pupils will have the advantage of a Complete Laboratory. 19v16

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OF THE NEWARK, N. J.,
Metallurgical Works.

BALBACH & BROTHER,

No. 315 Howard Street, bet. Fremont and Beale, San Francisco.

Assays of Gold, Silver, Copper and Lead Ores.

Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, it is done by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.

Consignments of Gold and Silver Ores solicited.

Refining of Bullion at usual rates.

Agents for Ed. Balbach's Improved Process for Separating Silver and Gold from Lead. 25v15 3m

JOHN TAYLOR & CO.

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AND DEALERS IN

ASSAYERS' MATERIALS,

Druggists' & Chemists' Glassware,

Photographic Stock, Etc.

512 and 514 Washington Street,

SAN FRANCISCO

WE are receiving direct from MESSRS. LADD & OERT LINO (London) and BEEKER & SONS (Antwerp, Belgium) their superior

ASSAY AND BULLION BALANCES,

And from France and Germany, as well as the Eastern States, FURNACES, CRUCIBLES, MUFFLES, BLOW-PIPE CASES, GOLD SCALES, CHEMICAL GLASSWARE, and every article required for ASSAY OFFICES, LABORATORIES, etc. We have given this branch of our business particular attention, to select such articles as are necessary in the development of the mineral wealth of this coast.

A Full Assortment of DRUGGISTS' GLASSWARE and DRUGGISTS' SUPPLIES, ACIDS and CHEMICALS, can be supplied on hand. San Francisco March 6, 1868. 11v10 1f

MANHATTAN

Metallurgical and Chemical Works,

Nos. 552 and 554 West Twenty-eighth st.,

NEW YORK.

Assays of Gold, Silver, Copper and Lead Ores.

SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF Ores, Minerals, Clays, Waters, and General Commercial Products of all kinds.

Tests of Gold, Silver, Copper and Lead Ores, by Smelting, in quantities of fifty pounds to five, ten or fifty tons.

Consignments of Ores solicited.

Refining of Bullion at usual rates.

Founders and Metal Workers furnished with alloys at every description.

Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical Products.

Superintendent, Mr. WILLIAM WEST, formerly of Swansea, Wales.

For engagements and terms, apply at the office of

SECOIR, SWAN & CO., 66 Broadway.

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Just Published.

THE PHILOSOPHY OF MARRIAGE, BEING FOUR IMPORTANT LECTURES ON FUNCTIONS AND DISORDERS OF THE Nervous System and Reproductive Organs, to be had by addressing and enclosing twenty-five cents, postage stamps, to Secretary PACIFIC MUSEUM OF ANATOMY, Montgomery street, San Francisco. 2v13 1v

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SINGULAR EXPLOSION.—We learn from Dr. J. A. Veatch, who is now sojourning for a short time in this city, that the spontaneous bursting of a saw-log, with explosive violence, occurred at the Port Trinidad sawmill, Klamath county, in December last. It was a section of a redwood tree, five feet in diameter and sixteen feet long. It had just been brought from the forest, and was in position to be rolled on to the carriage of the mill, preparatory to being cut into boards. The workmen had only a moment left its side when it split asunder nearly into equal halves, the parts separating with a bound to the distance of a yard or more; the noise was something like that of a gunpowder explosion.

The facts were related to him on the spot, by eye witnesses, a few hours after the occurrence. A singular phenomenon was also reported to him by a lumberman, where a redwood log forty feet long, while being hauled from the woods, split apart through its entire length, commencing at one end and passing rapidly to the other, but not with explosive force. The two sides curved in opposite directions as the separation took place. These instances of splitting were probably due to unequal tension among the fibers of the log,—of the same character as the rents that are known to occur in extensive solid masses of rock in mines. The singular fact of rents occurring in compact rock formations without the intervention of any exterior force, has been observed in deep mines both in Europe and America. As no earthquake shock occurs in such cases, and the sides of the rents remain facing each other, and only a loud bursting report is heard at the instant, it is perhaps rightly attributed to internal tension. Rents suddenly formed, with a report like a cannon fired off, the sides separating a foot or more, and extending laterally and vertically several hundred feet, are on record. We are not aware that such occurrences are frequent; but it would be interesting for lumbermen to note facts of like character, whenever they do occur.

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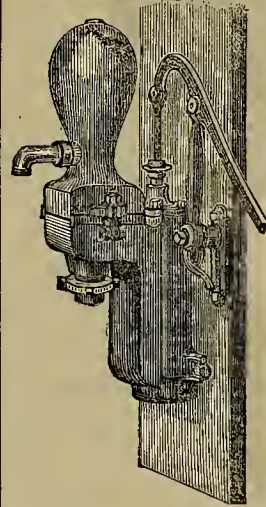
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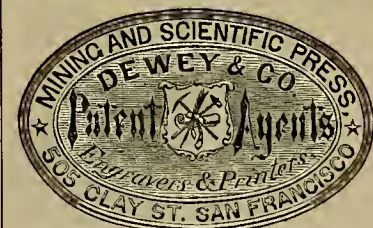
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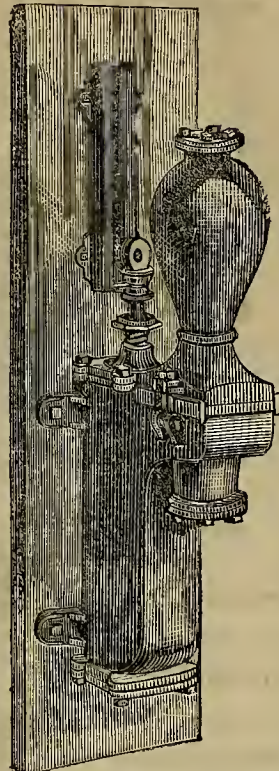
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VOLUME XVI.
Number 10.

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Locomotives: Breaking of Cyl. Wheels; To Polish Steel; New Lathes. SCIENTIFIC MISCELLANY.—Copper not so generally Offused in Nature as has been supposed; Transmutation of Air; New Genus of Corals; Binocular Eye; Piece for High Powers; Glacial Action in Vermont. MINING SUMMARY.—Comprising late intelligence from the various counties and districts in California, Arizona, Colorado, Dakota, Idaho, Nevada, New Mexico. San Francisco Mining Shareholders' Directory. Notices to Correspondents. New Incorporations—List of Officers. New Patents and Inventions. San Francisco Weekly Stock Circular. Stock Prices—Bids and Asks. San Francisco Market Rates. San Francisco Metal Market.

New Process of Engraving.

The plate illustration of Mr. Hallidie's "Rigid Suspension Bridge," for which that gentleman has recently obtained a patent, and which we have placed upon the 9th page of our present issue, is done by a new process of engraving, which has recently been introduced in France, where it is already largely employed in illustrating newspapers and other publications. The illustration which we give to-day is hardly a fair sample of what can be done by this process, it having been executed under all the embarrassments of a first attempt in this city, and upon a plate quite too thin for such work, but the best which could be obtained. Moreover the character of the engraving given, is peculiarly unfavorable for the process. A close, well filled picture is the description of work most suitable therefor.

In this process the design is first drawn upon a lithographic stone, and an impression taken therefrom by use of a peculiar preparation, which takes the place of the ordinary lithographic ink. This lithograph is then "transferred" to a zinc plate, much in the same manner as similar transfers are made upon wood or pottery. This done, by a proper manipulation and the use of an acid to eat away the uncovered portion of the zinc, corresponding to the light which is thrown into the picture, the plate is readily prepared for the printer without the ordinary process of engraving.

This process mainly recommends itself by its cheapness and the dispatch with which a certain class of work can be done. The plate which we have used to-day is the work of Mr. Van de Castele, of the lithographic establishment of Messrs. Britton & Rey, of this city, and, as has already been intimated, is the first work of the kind done on this coast. These gentlemen are making preparations to execute and transfer ornamental designs for window and other glass, the engraving, or more properly, etching, to be done by fluorine acid, after the well known process therefor employed.

NIAGARA SUSPENSION BRIDGE.—The second suspension bridge over the Niagara river is in progress. The wooden towers are erected on each bank, preparatory to stretching the wire. The permanent towers will probably be of iron. The span is 1,300 feet.

Danford's Steam Generator.

FURTHER EXPERIMENTS.

The history of this invention is somewhat familiar to the public, and we have noticed, from time to time, the progress which has been made toward bringing it into practical use; yet as but little has been heard of it for the past year, it may be interesting to our readers to peruse a brief resume of the circumstances which have caused its delay to the present time, and of the continued experiments which have been in progress since our last reference to it.

During the summer of 1865, from a series of careful trials and experiments, extending through several months, it was ascertained, as is claimed by the inventor, and pretty fully demonstrated:

1st. That the Danford Generator would produce a continuous supply of superheated steam from jets of water thrown into a volume of steam; without the boiling of water.

2d. That superheated steam thus generated could be worked at from 100 to 200 pounds pressure, continuously.

3d. That the Generator would do the same work done by the steam boiler, with one-half the coal and one-quarter the water.

4th. That the Generator would in no case explode (even under the highest pressure), being as safe as a cook stove.

The enunciation of these asserted facts startled the world, and well it might, as their demonstration must establish the fact that the Danford Generator must at once become the standard steam power. The most difficult question involved appears to have been that of *durability*—how long would the generator last? As this question could only be settled by continued use, some time must elapse before it could be known what the answer would be.

The generators used in 1865 were made of cast iron, the first one being a sphere two feet and a half in diameter, two inches and a quarter thick, set in a furnace. This generator was in continual use nearly three months, carrying from 100 to 200 pounds of steam to the square inch, operating to the pretty general satisfaction of all who saw it. Then it cracked. It was broken up and carefully examined to ascertain what the condition of the iron was. Fears were entertained that it had burned out, but it was found that the iron was bright and sound, showing not the least appearance of being injured by the fire. Encouraged by this, the inventors were led to believe that the generator had cracked because of its being *too thick*, and arrangements were at once made to have others put into operation in New York city, and at the West, of various thicknesses from three-quarters of an inch to two inches. Pursuing these experiments, twelve were made, of cast iron, and put into operation, consecutively, bringing, as results, the same experience met in the first, namely, that cast iron, however used, of whatever size, shape, or thickness, is liable to crack; so liable that it cannot be depended upon for such a purpose.

The construction and operation of these cast iron generators, cost time and money, and greatly delayed the introduction of the

same to public use. But while the unreliability of cast iron was made apparent, the perfect safety of the generator appears to have been pretty fully demonstrated; some of them having cracked while carrying 300 pounds of steam to the inch, doing no injury, not even blowing the coals out of the furnace! There are many witnesses who can attest the truth of this statement; among them, Judge Wilson, of Kane county, Ill., who came to see one operate. The engine was driven with great energy, under steam of 170 pounds pressure. The Judge was congratulating the inventor upon his grand success, when a dull hissing of steam was heard; smoke and flame being driven out of the furnace door. The Judge remarked that something was wrong, suggesting that the draft must be reversed. He was not a little surprised, when told that he had witnessed an explosion. The generator, in this case, was cracked across the bottom, over twenty inches, the steam escaping into the furnace, without the least damage. On breaking it up, no sign of injury to the iron, by the action of the fire, was found, the thin scale on the outside of the iron not having been burned off.

Trying to patience as were these repeated mishaps, they were no doubt worth, in determining the absolute safety of the new invention, all they cost, of both time and money.

Concurrent with these experiments in cast iron, a generator was made of copper plates, two feet and a half in diameter, quarter inch thick, riveted with a double row of rivets. It was found that this made steam with surprising rapidity and energy, but that it also leaked steam through the joints, after a few days firing, so as to disable it for continued use. Copper being much softer than iron, this experiment should be by no means conclusive against riveted iron, which may yet be found to answer well; although it has not yet been tried.

This experience demonstrated the probable necessity of having generators made of welded wrought iron plates or Bessemer steel. Over three months were spent in visiting iron masters and others who were likely to give the desired information on this subject. As a result of such inquiries, the proprietors of the patent were led to believe that the best wrought iron flange plate could be welded into a generator of any desired size, and that it would prove durable. Accordingly, they had one made at the Atlantic Dock Works, Brooklyn, N. Y., in October, 1866. This was welded up, without joints or rivets, of five-eighths flange plate, Juniatta iron, and was put into operation in November, 1866, which has been in constant use since, sufficiently long to warrant the belief that it will last for years. It is said to generate steam rapidly, and shows no perceptible tendency to burn out, even when the furnace is hottest. Encouraged by these facts, in May, 1867, they ordered some No. 1 charcoal plate flange iron, made by crossing four thin plates of the toughest iron, and welding them together in a suitable charcoal furnace. This plate is then rolled, re-rolled and hammered until it is perfectly sound, making a kind of sub-and-twist iron, of the greatest tenacity and strength. Two generators were welded up of these plates, showing that there is no special difficulty in doing this kind of work. These generators were both put into use and operated with entire satisfaction, giving no trouble, and showing no signs, so far, of burning out.

Difficulties in the way of using superheated steam in the steam engine, it is also claimed, have been entirely overcome. The pump; the regulation of the water; the

valve gear, and the packing about the piston and valve rods; in fact, all the details concerning the generation and use of superheated steam for motive power, are so perfected as to cause the engineer no more trouble than is experienced in the use of the steam boiler. The engine now being usual was made by the Northwestern Manufacturing Co., Chicago, and has Tremain's patent balanced piston valve, which operates without friction, and is most admirably adapted to the use of our steam.

It may be proper here to say something about superheated steam. What is superheated steam? and in what does it differ from other steam?

Superheated steam is known as dry steam, and heretofore has been made only by passing steam, made in a boiler, through a coil of pipes made hot over an extra fire, where it is raised from 300 degrees of heat (the temperature of steam at 75 pounds) to 500 degrees, which is superheated steam. Superheated steam, for motive power, has never been made in any other way, until made in the Danford Generator.

In the generation of steam in the boiler, there intervenes between the fire and steam, a body of water in a state of ebullition, and it is impossible to compel the water to take up but a gradual and limited amount of heat, under the best circumstances; even in the locomotive boiler, steam of but 350 degrees of heat is made; any attempt to exceed this, results in explosion. The whole value of steam for power, is in the heat it contains;—heat is the power; but water is the only substance known through which to distribute this heat and render it effective in the engine. Air has been tried and found to be of little practical value. Ericsson found that he could get but 15 pounds of effective pressure even when he made his generators red hot. Much as we could desire success in this direction, it seems impossible of attainment, air being too light for motive power.

In the Danford Generator, there intervenes between the fire and the steam, no body of water; nothing but the shell of the generator; so that the heat of the furnace acts directly upon the steam, superheating it to the highest degree possible. It is believed that in this generator a limit has been reached to the expansion of water.

The generator now in operation at 248 South Water street, Chicago, it is claimed fully sustains all the pretensions of the inventor. It has a 15-foot fire surface, which, in the steam boiler, represents but one-horse power; yet this generator exerts a 12-horse power, day after day, continuously, and can be worked up to a 15-horse power by urging the fire. The expansion of the steam is such that the engine, which has a cylinder 6x9 inches, cuts off steam at a little over one-fifth stroke, (two inches), making 200 to 250 revolutions a minute, using from 40 to 50 pounds of coal per hour. The furnace is not made with the strictest regard to economy in fuel, as a certain amount of heat is wasted that might be saved in a stationary engine.

The company has made arrangements with E. B. Ward, Esq., of Detroit, (Wyandott Rolling Mills,) for the manufacture of charcoal flange iron for generators, and expect soon to be in a condition to answer orders for engines. Parties on this coast desiring the generator, will do well to communicate with O. M. Taylor, Hicksville, Sacramento county, Cal.

IDAHO FOSSILS.—The Owyhee *Avalanche* of February 8th, says that J. C. Holgate has found, in the neighborhood of Sinker Creek, some curious jaw-bones, which are probably relics of an extinct race of animals. Specimens are to be sent to Prof. Agassiz.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

(Written for the Mining and Scientific Press.)

Diatoms--What they Are, and their Possible Connection with the "Pictured Rocks."

BY PROF. ROWLANDSON, F. G. S. L.

Perhaps it ought to be explained to the reader what diatoms are. This variety of microscopic objects has usually been classed amongst infusoria, and although the researches of our best naturalists have placed these singular organisms in the vegetable kingdom, it is very difficult for an ordinary observer to comprehend such classification. Some varieties possess forms not greatly dissimilar to the *equiseta* (horse tails). Such are the *gallionella sulcata*; while the *eunotia longicornis* and its sub-varieties greatly resemble the appearance presented by a half-grown kidney bean, longitudinally divided through its center. One of the most common shapes is that of a univalve shell, which, in form, would be nearly paralleled by an extremely elongated cowrie—a shell which forms the money standard of value on the coast of Africa. Others, as the bacillarias, approximate in appearance to a bunch of reeds, resembling that primitive musical instrument, Paudean pipes. In fact, the varieties are probably as numerous as are to be found amongst the fungi.

Diatoms have, however, hitherto been placed by naturalists amongst the algae,* rather than the fungi; a comparison with which latter variety of cryptogams would have been unnecessary but for the circumstance that the "pictured rocks" under notice present appearances indicating that the development of the variety of diatoms, if diatoms they be, which have occasioned the singular moss-like appearances which their surfaces present, are more due to a mode of growth, assimilating to that of the fungi, as seen in many varieties of "mold," often so annoying, and sometimes destructive also, when found amongst linen and books, rather than strictly associated with the modes of dissemination and growth observed in infusoria or algae. Viewed in sections, as presented by the slabs now on exhibition, the general outlines more resemble those of mosses or lichens than any other organized matters.

I have been a little diffuse in enumerating some of the above particulars, because it is probably the first time that any public notice has been taken of the possibility that the diatomaceæ may, under certain and favoring conditions, and with certain varieties, develop and extend their species not greatly dissimilar in mode to the species of fungi alluded to, or, in physical outline, to the branching varieties of corals.

The minute organisms now under consideration being, as they most probably are, the typical, if not the actual precursors of every other variety of vegetable and animal life, have been divided into two orders—the diatoms and the desmids; the difference consisting in the former being enclosed in a silicious shield or casing, and the latter in a calcareous one. The remains of the former constitute considerable beds in various parts of California, the Eastern States, and other parts of the world, and when in an unmineralized condition, are employed as a metallic polishing powder. The remains of the latter species are chiefly found amongst the cherty and soluble silicious strata of the chalk formation which is found so abundantly amidst the cretaceous series in England. Dust showers and the so-called blood rains are usually composed of these two organisms, intermixed with protozoans.

I should not have indulged in the preceding speculations had it not been for the circumstance that during a parting visit to relatives, prior to leaving England, who resided in what is called the "Lake District," I, in conformity with a promise given to the late Daniel Sharp, made a geological ramble in the vicinity of Conistone "Old Man," with the object of collecting fossils that might illustrate the geology of that district. While so engaged, I accidentally met a gentleman equally occupied in searching for objects of interest connected with natural history. Amongst other topics arising in the course of conversation, the sub-

ject of diatoms was introduced; and as we were not a mile distant from the spot where I was informed by this accidental acquaintance that a black variety of these microscopic beings could then be seen accumulating, my new friend volunteered to conduct me to one of the small mountain sheets of water, locally denominated tarns, where the phenomenon could be witnessed. On arriving at the embouchure of a mountain stream, and for some distance after the current had become comparatively tranquilized by being absorbed in a considerable body of still water, the entire bottom of the tarn was seen to be covered, and on trial was found to be so in some places to the depth of several inches, with an impalpably fine black sediment, which my companion assured me was composed of the remains of a dark-colored variety of diatomaceæ. Such a deposit would necessarily become occasionally overlaid with sand and other detritus, brought down by the torrents which would succeed rain-storms, and so produce these handed and ribbon-like appearances which are to be seen in the "pictured rocks" now being noticed. A description of the principal facts just described appeared in the journal of one of the London Scientific Societies (either the Microscopic or Geological), and if I remember rightly, some of the forms were figured in accompaniment with the letter-press description.

Only a short time previous to the occurrence just related, I had occasion to descend and examine a copper mine, called the "Green Bank," situated about three miles to the eastward of the tarn alluded to; in descending the shafts of which, especially at the lower portion, I found the walls covered with an exceedingly fine impalpable black powder, very much differing from the mold occasionally seen in deep caves, and sometimes in tin mines, especially when the latter are found in granite. At the bottom of the shaft, and in the older portions of the lowest levels, I found this singular accumulation the most abundant, in some places reaching a thickness of nearly three inches. From the external appearance, I was led to conjecture that this substance might possibly be caused by infiltration and subsequent precipitation of the black oxides of manganese or copper, to either of which the substance bore a strong resemblance; and therefore, for the purpose of future examination, I collected probably as much as would weigh half an ounce, more not being obtained in consequence of its being so bulky. Rough tests, however, subsequently showed that neither of the above named metals was present, on which the remainder was carefully wrapped up and placed with a trunkful of miscellanies of a like kind, with the object of being more carefully scrutinized after my arrival in California. This trunk, however, by some mischance, never arrived, and the circumstances attending the probable origin of this pulverulent matter was forgotten until recalled to my memory after examining the picture rocks now on view.

My attention, on arriving in California, was called to the great accumulation of diatomaceæ in this State, numerous deposits of this character having been described under the common but erroneous title of magnesia; on becoming acquainted with which, my attention was directed towards the possibility that much of our earliest stratified, but subsequently metamorphosed rocks, especially those of a silicious character, were originally formed of similar accumulations. Such a theory will account, in some measure, for the more siliceous character of our lowest stratified and earliest metamorphosed rocks, as compared with their more basic composition of later years; besides, it may be added that a more thermal sea, which, it is highly probable, was also more largely impregnated with soluble silica than the more recent and cooler oceanic waters, would be calculated, if the theory is correct, to greatly promote the development of these minute organisms. The correctness or otherwise of this last named theory is not likely to be solved by direct proof; as, what with aqueous and igneous metamorphic agencies, the excessive divisibility and minuteness of these microscopic organisms, added to the countless ages,—or, as Prof. Owen has termed them, Eons of time,—that have elapsed since these primordial living creatures were called into existence, have, both separately and as a whole, contributed to obliterate all traces of their earliest physical structures. Having suggested the idea, I leave the proof or disproof of the theory to others. Witnessing the dark-colored forms and striae of the "pictured rocks," recalled the recollection of the two instances above detailed, and the whole have been considered in connection, believing it very probable that the varied phenomena described are closely associated.

I had intended to have made some remarks on the probability that ribboned and "mossy agates" may be occasioned in consequence of certain infiltrations and changes which may have taken place with similarly figured accumulations to these now under notice; such observations, however, must remain over to a future day.

(Written for the Mining and Scientific Press.)

Another Letter from Sierra Gordo.

EDITORS PRESS:—If I did not know the Press to be an honest paper, and if Mr. Delavan were not here at this moment, I should be led to suppose that you were following the pernicious example of your contemporaries, and had fabricated your "interesting letter" from "Sierra Gordo" in your little back room at South Beach, where that big cat plays among the chemical bottles.

But I am willing to accept as truth Mr. Delavan's somewhat detailed statement of the number and kind of conveyances which brought him to this place, and took him to that, inasmuch as he is here, and was there, as I am reliably informed. Neither shall I dispute the alleged productiveness of Blind Springs Valley, where doubtless sagebrush, at least, grows luxuriantly. It is also true that Owen's River runs through the valley, without which obliging conduct on the part of that stream, we should all have been drowned during the late heavy rains. But Mr. Delavan's compass must have been out of order, or else he himself was like that ancient mariner, not Coleridge's hut Tom Hood's, who

* * * "A handsome pigtail wore,
And wondered much and sorrowed more,
Because it hung behind him."

And whose "head was turned" in consequence of his frantic efforts to bring the other appendage into the position which he thought it ought to occupy, in front.

Be this as it may, it is certain that the mines in question are not "west of the lake," at least if they are they have effected a very complete change of base since my visit to them last fall.

Mr. Delavan informs the readers of the Press that "the ledges already discovered are very numerous, and there are many more yet to be found." By what witch-hazel or cabalistic communication with the world of spirits, he is enabled to make the latter assertion, we can only conjecture; but, when he says further of the mines, that "some of them contain a large amount of silver, a little lead and copper, and others contain a large amount of lead and considerable silver," and "the mines generally are of that character," we have to thank him for a piece of information the value of which is only exceeded by its precision.

The name of the company with which Mr. D. claims connection, and which has got itself into such bad odor in the mining district that its agents, whether they know it or not, narrowly escaped maltreatment at the hands of the incensed miners, may be "Sierra Gordo" (in this vicinity it is known as the "Squash Co."); but "the ordinary spelling"—"Cerro Gordo"—is not "incorrect."

The name of the district might have been Sierra Gorda, without outraging Spanish grammar, or the feelings of the Academy of Madrid, had its sponsor chosen so to name it; but being probably a modest man, he did not aspire to the honor of naming a whole range of mountains, and so contented himself with calling it Cerro Gordo, or "Fat Mountain,"—an appellation probably suggested by the "fat ore" which he found there, or possibly by the luxurious diet it afforded; as it appears from Mr. D.'s little historical sketch, that he was compelled by hunger to go in search of his two companions, presumably, from the context, with a view to eating them,—in which friendly design, however, he was anticipated by the well known and indefatigable Mr. Lo, who had already "gobbled them up."

How are the two statements, that Mr. D. knows "of no place on the Pacific coast that holds out so great inducements," etc., and that "there will probably be a large emigration here next season," to be reconciled? Does the gentleman mean to hint that it is a good place to go away from?

The furnace which was to be put up, and was to be the means of furnishing much valuable information, turned out a perfect failure, as did also one which was erected near Lone Pine. That there was nothing

in the nature of the ore to justify failure, is proved by the fact that the latter furnace is now in perfectly successful operation, under the direction of a Mexican. Strange that none but Mexicans have yet accomplished any success in metallurgy in this vicinity!

Quite a number of persons have been to see these mines within the last four months, mostly, however, of a character to benefit us but little. I know I speak the sentiments of the miners, when I say they have had quite enough of brainless, pretentious nobodies—spiritual decters, feet-grabbers, and other nuisances, who came here with neither money nor muscle with which to accomplish anything. They want good, solid men, who mean business, and are able to do it, or none. We all believe we have a good mining country. If capitalists choose to come, it will be well; if not, we can do without them. But if they do come, my advice to them is, to study well the character of the particular ores they wish to treat;—to pay, if need be, for competent advice, before rushing to the foundry to order the stereotyped *pan mill*, which Californians seem to think ought to extract dividends from any and every kind of ore.

This valley is sprinkled from end to end with idle and dilapidated *pan mills*, pitiful monuments of the wealth and folly of G. and S. M., or Grand and Sublime Middle-head companies. C. H. A.

Lone Pine, Jan. 18, 1868.

The "Pictured Rocks."

EDITORS MINING AND SCIENTIFIC PRESS: Having observed the comments of your correspondents, and your editorial remarks, in reference to the extraordinary landscape stones that are being exhibited at the corner of Montgomery and California streets, I have also examined them, and beg space in your next issue for the exposition of the following opinions relating thereto:

A first sight impresses the mind that these views are perfect products of vegetable growth, which, by the decomposition of its elements, had been most indelibly marked, by the equivalent: *carbon*, for all time; but such is not corroborated by microscope or analysis,—as I find the former does not expose its vegetal structure, but *crystallization*; and the latter, instead of *carbon*, *peroxide of manganese*, of the variety called "wad," or "hog manganese," which also contains small quantities of other minerals, in constitutional and mechanical forms. It is found deposited in low lands, from decomposition and disintegration of other minerals, more particularly iron, thereby releasing manganese for new affinities. Now, supposing the sand or debris herein, called tripoli, to have been washed or blown to its bed, it would (like all other muds or sands) be distributed unequally, by the irregular action of water and wind, and the other distorting forces of subsequent periods, as exemplified throughout the world's geological field, on all scales, from mountain ranges to the miniature hills and dales of these sections, some of which are cut at oblique angles.

We will now infer that the next wash brought manganese (or deposited mineral sand that by decomposition released manganese), which, in its turn, united with oxygen, and cradled in its sand support, aggregated in "radiated groups of acicular crystals," or in "fibrous botryoidal masses," that would create "*dendritic* (tree-like) *delineations*," which literally and most peculiarly characterize the forms of crystallization of this mineral, and therefore portray and explain the arborescent contour of these formations.

The repetition of this process at different times would form the several stratumnal views, as similarly deposited in all alluvial strata.

This may have been further diversified by the presence of magnetic sand, the tremulous motions of a volcanic region, and by the grains being somewhat soluble, coloring and blending in the margins of crystallization, whilst oxide of iron and carbonate of manganese have tinted the foregrounds.

The comparatively regular distances between the (apparent) trees, may be accounted for by the fact of a single interstice between three or four grains of sand, being insufficient in area for the moving power of crystallization to penetrate; and, consequently, several grains must be packed laterally to make room for extending developments, by the greater closing of several spaces, to increase the one wherein the mineral is deposited. J. S. PHILLIPS, M. E.

Wadsworth House, San Francisco, March 4, 1868.

*Such are the so-called sea-weed, and, amongst fresh water streams and ponds, the long, green hair-like plants so found.

Mechanical.

THE MARTIN STEEL PROCESS.—The *Engineer* has the following: The Martin process was started at Firminy, France, on the 1st of June, 1867, and two Siemens' furnaces have been kept in constant operation since that date, each capable of producing 3,500 kilo. (about 3½ tons) of steel ingots at a charge, two charges being made every twenty-four hours from each of these furnaces. The rate of production at Firminy is therefore about 80 tons of steel per week. The product is cast-steel similar in its nature to crucible steel, or any other kind of cast steel made from raw materials of equal purity and quality. The principle of M. Martin's invention is the substitution of the reverberatory furnace for the crucible, in steel making. He makes the bottom of his furnace to serve as a crucible. He follows a process similar to that in general use by steel-makers, i. e., the melting of cast iron with wrought iron and steel scraps, and with fluxes; and he only modifies his operations to suit the nature of his enlarged crucible. He cannot exclude the furnace gases, as the pot-steel makers do, by covering their crucibles with proper lids; so he employs a quantity of very liquid slag to form a lid, and cover the surface of his metal. He further resorts to the Siemens' furnace, which gives him, in the first instance, a clean flame free from obnoxious impurities, and which, moreover, allows him to adjust the nature and character of the flame from an oxidizing to a neutral and even to a reductive flame, just as the stage of the process requires such changes.

GOOD TOOLS.—The *Artisan* says that great improvements have been made in tools within the last few years. Since the demand for military weapons has declined, the tools and machinery used in their manufacture during the war have been necessarily employed in other work. As the tools, etc., used in the manufacture of fire arms, are of the most perfect description, and as they are mostly constructed with reference to reduplication, the workmen who have got accustomed to them are inclined to follow the same system when they take up work of another description. The milling machine, for instance, is now in use where a few years ago it would have been thought useless. The exactness of its execution induces equal exactness in the other parts of the work. The twist drill, also, is a valuable appliance, which followed the milling machine. A number of ingenious adjustable chucks came next, and even the presence of these drills and nicely finished chucks have a marked influence on the workman who uses them, and the influence extends to the work he is engaged upon. Formerly every mechanic made his own drills and chucks, and any care or labor above the bare requisite in a hastily-made tool was deemed unnecessary, especially if the mechanic was engaged upon "piece-work;" then extra time expended upon his drills or accompanying fixtures was so much deducted, as it were, from his pay or profit, and as a consequence drills and fixtures were slovenly and ill-made, and even this small beginning engendered a carelessness throughout the whole work. The hint may not be lost to the manufacturer who would raise the standard of workmanship in his employes, to furnish them with good tools and fixtures, and the desired result will be effected.

TUNGSTEN STEEL.—The admirable quality of this steel for cutlery has been of late much discussed. At a recent meeting of the Polytechnic Association of the American Institute, Prof. Van der Wyde exhibited a knife, the blade of which was made of tungsten steel. So admirable were the qualities of this blade that it cut glass like a diamond; experiment and examination showed that it did not merely scratch, but made a clean, diamond-like cut. The discussion turned upon Damascus steel, which was declared similar in nature to tungsten steel. Dr. Feuchtwanger stated that tungsten steel was found in this country in Nevada, and a mine had recently been discovered in Missouri. England has also an inexhaustible supply of this mineral. Prof. Joy said that tungsten is more difficult to fuse than manganese. Tungsten derives its name from the German, and means "heavy stone." Two per cent. of tungsten will make iron very hard.

EUROPEAN AND AMERICAN LOCOMOTIVES. A writer in the London *Herald* thus compares the locomotives of different nations:

In England, we see the locomotive engineers, as a general rule, aiming at high speed, as little complication as possible in the parts of the engine, utmost simplicity in all things, perfection of adjustment and workmanship, and high boiler pressure. Franco has slow speed and very heavy trains. Her engineers aim at large tractive force, do not spare complication, use large quantities of material, and couple numbers of driving wheels together. The American idea is cheap engines. Their locomotives have their parts very accessible, and they run them at fair but not high speeds. The American engines have special arrangements for clearing and lighting the road, and for burning wood in their furnaces. American engines are supported on four-wheeled trucks, or bogies, which, while giving steadiness, allows the engine to travel on bad roads, and to traverse sharp curves. The German engines go even slower than the French. The proportions of parts of all the foreign engines—particularly the German—are very bad. For instance, the cranks in many cases have double the quantity of material necessary, and this so disposed as to be a perpetual tumbling weight in their revolutions. Of the Italian lines, we know of nothing special to say. The Belgians run their engines at speeds intermediate between the German and French; and they follow a medium of English and French make in their construction. The Russians are much the same as the Germans. The engines are mostly of English type; in some cases a cross between the English and the American.

BREAKING OF CAR WHEELS.—A writer in the *Railroad Journal* makes the following remarks upon this subject: Anthracite iron, or iron smelted with anthracite coal, from its want of strength,—owing to the sulphur and other impurities in it,—is never used for car wheels. The best charcoal iron should be used. All varieties of hard coal contain more or less sulphur. But the practice of re-melting old car wheels with anthracite coal, using from one-third to two-thirds of new metal, is quite common. With each re-melting, a portion of sulphur is absorbed; and the result is the production of an iron which is growing weaker from year to year. Breakage and loss of life is the consequence.

A BOOK FOR VISIONARIES.—Dr. P. H. Van der Wyde has prepared a work entitled the *Philosopher's Stone*; "being four essays containing the answer of positive science to the question, 'What is known at present about the quadrature of the circle, perpetual motion, the making of gold, and the elixir of life?'" The first, on the quadrature of the circle, is already out; and is spoken of as very thorough. The next, upon perpetual motion, is likely to dispel the dream of more than one enthusiast.

TO POLISH STEEL.—M. Stoss, a German engineer, finds that oxide of chromium is the best substance for polishing steel. The article is easily procured, as it is used for painting on porcelain; or it may be prepared by heating to redness the bi-chromate of potash. The neutral chromate of potash is formed while one equivalent of chromic acid is converted to chromic oxide, which is easily separated.

IRON BUSINESS IN BALTIMORE.—The Abt Co's mills cover ten acres of ground. The eight furnaces of the rail mill have produced at a single turn, 113 tons of finished rails. The total production of the mills is about 25,000 tons per annum, the value of which is two and a half millions of dollars.

THE LATHE.—A new form of the lathe has recently been adopted in Leeds, the arrangement being such that cutting tools can be brought into action simultaneously on the opposite faces and inner surface of the tire, so as to complete the entire operation without shifting the work in the machine.

CHEAP MECHANICAL LABOR.—Wheel stocks 13 inches in diameter are turned from the rough block, bored down the middle for the axle, and mortised to receive twelve spokes, in Woolwich Arsenal (England), at a cost of about 1¼d each.

Scientific Miscellany.

COPPER NOT SO GENERALLY DIFFUSED IN NATURE AS HAS BEEN SUPPOSED.—Jerome Nickles, noticing the remarkable fact that copper has been found by a certain chemist everywhere, and in all substances which he has examined for it, both mineral and organic,—and that, too, while employing reagents which he had carefully tested and found free from that metal, was convinced that there was some source of error,—and that the copper must be derived from the apparatus used. The evaporations and calcinations were performed by the chemist alluded to, in a platinum dish with a Bunsen's burner. These burners are generally of copper. Copper is to some extent volatile when heated in a current of gas; and in fact the flame, when these burners are used, is often seen to be colored blue by the copper which is volatilized.

In his correspondence, dated Nancy, France, Oct. 22d, Nickles says that his remarks upon the subject "have just been confirmed by Lossen, (*Jour. de Pharm. et de Ch., IV, iv 21*), who has found that in fact Bunsen's burner is the true source of the copper that has been discovered in many of the residues from incinerations; for in experimenting with a large number of organic substances, Lossen has, in fact, obtained either some or no copper according as he made his incinerations with a copper, or a glass burner (or one free from copper). Now that this cause of error is found out, many results are explained that appeared strange when they were announced. Of this kind is the grain of copper which Gabn obtained, on reducing to ashes, before the blow-pipe, a piece of paper. The fact of normal copper, that is to say, copper in the blood, may be admitted, if the presence of copper in mineral waters is established. But it is necessary to receive with reserve the assertions with regard to copper-bearing mineral waters, inasmuch as the analysts were not aware of the source of error here mentioned."

TRANSPARENCY OF AIR.—It is well known that clearness of the outline of distant mountains is considered as indicating great dampness in the air, and as one of the surest signs of rain. But this is by no means always the case. The air is equally clear in winter, when it is perfectly dry. De La Rive has concluded that the transparency under the first conditions is due to the absorption, or solution, by the watery vapor, of the impurities which are always mingled with the air. These particles become thereby transparent, and are also rendered heavier, so as to fall to the ground. In winter, the mountains, as seen over plains of snow, are distinctly outlined, although the air is perfectly dry;—because there is no dust. This dust, consisting largely of organic particles, is most abundant in the warm season, when organic life is most active.

A NEW GENUS OF CORALS DISCOVERED IN NEVADA.—The *American Journal of Science and Arts*, for January, contains a preliminary notice, by F. B. Meek, of some fossils sent to him for examination by Prof. Whitney. They are spoken of as presenting an extraordinary and interesting combination of characters. Mr. Meek believes them to be specimens of a new genus of corals, and most probably typical of a new family. In this opinion, Prof. Verrill concurs.

Mr. Meek proposes, for the new genus, the name *Ethmophyllum*. There are apparently two species of this fossil; one large and more robust than the other, and more conical in form. This one is considered the type of the genus; and for it the name *Ethmophyllum Whitneyi* is proposed, in honor of Prof. Whitney. For the other, which is more slender in form, and which also differs somewhat in other respects, the name *Ethmophyllum gracile* is proposed, in case it should prove to be a distinct species.

None of the specimens are quite perfect. They were discovered by Mr. Clayton, at Silver Peak.

BINOCULAR EYE-PIECE FOR HIGH POWERS.

The use of the compound microscope in the examination of minute objects under a very high magnifying power, is exceedingly trying to the eye, when the ordinary eye-piece which admits of the use of one eye only, is employed. H. L. Smith, of Kenyon College, Ohio, describes an eye-piece of his contrivance, by the aid of which both eyes can be used at the same time. It consists of a side tube, through which a portion of the rays from the object are reflected by means of a plate of glass placed diagonally in the main tube. These reflected rays are of course thrown off at an angle from the remainder or transmitted rays which pass through the glass plate (and therefore through the main tube); but are brought back again to a line parallel with these transmitted rays, by means of a small prism placed in the cap of the tube. Thus the observer looks with one eye through the main tube, and with the other through the side tube, the angle formed by them being such that their ends are at the proper distance apart. This distance is adjustable for different persons. The glass plate is made very slightly wedge-shaped as to its thickness,—in order to prevent confusion of images by reflection from its back surface; the duplicate image from such reflection being thus thrown out of the field of view.

Mr. Smith says that this arrangement is not only a great physical relief, but that the effect is decidedly stereoscopic. He does not attempt to explain this fact, although he says that possibly there may be a real, though infinitesimal difference in the two images; and alludes to Mr. Claudet's experiments with the Thaumatrope, which show that the eyes are capable of appreciating a difference in the distance of two objects which are only the one twelve-hundredth of the whole distance apart.

GLACIAL ACTION IN VERMONT.—Edward Hungerford contributes a paper upon this subject to the *American Journal of Science and Arts* for January. He names, in the order of their position, commencing at the north, five peaks belonging to the Green Mountain range, all of which rise to the height of more than 4,000 feet,—which peaks he has carefully examined. He finds decided evidence of glacial action, in grooves and furrows, striations, polished quartz knobs, and rounded cliff-sides. The direction whence the glacial mass approached, is for the most part between N. 20° W., and N. 30° W.; in some cases so varied, according to the conformation of the mountains, as to make it apparent that these mountains presented a partial barrier to its progress,—although the general current maintained its course. Upon Killington Peak, which reaches the height of 4,221 feet above tide water, numerous well-rounded boulders of a rock foreign to that of the neighborhood, were found within twenty feet of the highest point; indicating plainly that they had been raised from a lower elevation and transported from a distance. Mr. Hungerford thus concludes his paper:

"It will be seen from this survey of the elevated peaks of the Green Mountains, that they present in every instance, where an examination has been had, decisive marks of glacial action around their extreme summits. The conclusion follows that those summits have been enveloped by glacial ice, which must have been in each case either the beginning of a glacier descending from the summit, or else a part of an extended ice mass, moving over the entire surrounding country. Against the former supposition might be adduced the form of these mountains, which, in every instance except that of Mount Mansfield, is that of a single isolated peak on which no gathering places for large masses of snow offer themselves; as also the fact that their rounded slopes point uniformly in the case of those I have visited, Mansfield, Camel's Hump, and Killington, to the northward, while abrupt precipices face southward and eastward. Still more conclusive on this point is the presence of quartzite boulders on the summit of Killington Peak, which have had their origin in remote beds at a lower level."

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, March 2, 1868.

Col. Ransom in the chair.
Nathan Porter, Emile Sutter and H. D. A. Schiffer were elected resident members.

THE UTILITY OF BOTANICAL GARDENS.

Prof. Bolander delivered an interesting address concerning the value of botanical gardens. He did not consider the youth of our State and city sufficient excuse for the failure hitherto to do something for experimental agriculture. He instanced what has been done in this direction at Melbourne, Australia, where a public botanical garden is in successful operation which embraces an area of 338 acres, and contains a great variety of forest trees, among which are not less than 10,000 conifers. The experimental ground contains various kinds of cotton, arrow-root, ginger, tobacco, coffee, tea, grass-cloth, and many other useful plants. Foreign and indigenous grasses, hedge plants, and such as are suitable for edgings, are subjected to experiment to test their value. The seeds of no less than 170 grasses have been harvested in the garden and distributed. Of 40,000 stone pines raised at one time, and 7,000 Deodar cedars at another, all were distributed to the public except a few for the use of the Department. A great variety and number of seeds and plants are annually distributed. No less than 209 institutions have been supplied during the past planting season. All vegetable products, whether commercially, medicinally, or technologically important, are eagerly collected and experimented upon. Besides its work in introducing new plants, the Melbourne institution has published many valuable reports, four publications having issued in the past year. The herbarium comprises about 286,000 specimens of Australian and extra-Australian plants. More than 300 genera, either not indicated before or specifically not elucidated, have been for the first time introduced into the systematic vegetation of this part of the globe. Ninety-five of these represent generic types novel to science. The phytochemical department of the institution has experimented with a great variety of vegetable products to test their value as new sources for the employment of labor and capital and the utilization of districts now barren. These experiments have shown that fibers for paper-making, volatile oils, tar, acids and potash, may be profitably produced from many native trees and plants. The report gives facts which show that some portions of the less secluded ranges of Australia, having singular facilities for irrigation, will yield olives, vines, oranges, and an almost endless variety of other fruits.

Considerable discussion followed concerning the utility of plants that have been or may be introduced in California. Dr. Stout observed that he had sent to the Paris Exposition the only perfect specimen of the California snow plant (*Sarcocolla sanguinea*) which ever reached Europe. Mr. Beckwith, the American agent, took charge of and promised to label and describe it; but it was neglected utterly. Another specimen has since been sent by the Doctor to the *Jardins des Plantes*. The plant, if numerous enough, would be valuable for its supply of gallic acid. Drs. Behr and Bolander stated that the snow-plant is unquestionably a parasite, growing from decayed wood on the soil. Dr. Kellogg sent a painting of the plant to Paris eight years ago, when he described it to the Academy of Sciences. Its power of absorption is very remarkable. A drawing of it is found in the Smithsonian publication. Dr. Kellogg lately found a specimen opposite Sitka.

THE GEOLOGICAL SURVEY.

Gregory Yale offered a resolution for the appointment of a committee to prepare a succinct recommendation for the continuance by the Legislature of the Geological Survey. The resolution was adopted after a brief discussion by a unanimous vote. A very strong feeling was manifested in favor of the survey, and of the retention of Prof. Whitney at its head, as a necessity to the material interests, the culture, and the good name of the State, no less than to the general interests of science. The following gentlemen were appointed a committee under the resolution: Gregory Yale, R. E. C. Stearns, Dr. A. B. Stout, H. Gibbons, and John A. Veatch.

The committee above referred to met at the Library Rooms of the Academy, on Tuesday afternoon, and adopted the following resolutions:

Resolved, As the sense of the members of the Academy, that the State Geological Survey should be continued and completed,

as imperative necessity demanded by the material interests of the State, and by the cause of education and science, and as a just exposition of the sentiment of the people of the State.

Resolved, That a copy of the proceedings of the committee be signed by them, and by the presiding officer and Secretary of the meeting of the 2d inst., and forwarded to the delegation of the city and county of San Francisco, to be presented to the Legislature for its action.

Gregory Yale, John A. Veatch,
H. Gibbons, Robt. E. C. Stearns,
Arthur B. Stout, Committee.
LEANDER RANSOM, President *pro tem*.
THEODORE BRADLEY, Rec. Secretary.

New Enterprise.

The North America Wood Preserving Company, which was incorporated in December last, to use the Samuels' process for preserving and indurating wood, have leased for a term of years a large lot on Berry street (Long Bridge), between the San Francisco Fuel Co's works and Fourth street, upon which they will immediately proceed to erect the necessary buildings and machinery for engaging, on the largest scale, in the preparation of wood under that patent.

This process of preserving wood, which has been already fully described in our columns, consists in placing the same in an iron cylinder, which is subsequently filled with steam to be condensed, whereby the cylinder is exhausted of its air. A solution of sulphate of iron is then injected into the cylinder, followed by a solution of lime; the whole being accomplished under a pressure of 175 lbs. to the square inch. By this means the pores of the wood are first emptied of their natural liquids, their place being supplied with the imperishable salts of iron and lime. Wood so preserved is indestructible by the elements, impervious to insects, and will endure almost as long as iron, in any exposure, and much longer when immersed in water. It is, furthermore, attacked with fire only with great difficulty.

The cylinder ordered by the company, which will be built by Messrs. Baurhyte, McAfee & Spiers, is to be 75 feet long by 4½ feet inside diameter; from which it will be seen that the company can prepare the longest piles which are used in our harbor, or the largest pieces of timber employed in any of our architectural works. Boards, and lumber of all descriptions, will be prepared in this manner.

An engine of 16 horse power constitutes a portion of the machinery employed, which will be used in part to run a powerful air pump, which is found necessary to complete the vacuum which has been partially effected by the condensation of steam. This enterprise will be under full headway inside of sixty days, and will no doubt be found one of great importance and utility to this city and the Pacific Coast generally. The additional cost to piles put down and capped in this harbor, prepared by this process, will not exceed 20 per cent.; for ordinary lumber the additional cost will not be far from \$12 per M feet; but when so prepared the durability will be increased tenfold, or more.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

SAN FRANCISCO FARMING AND MANUFACTURING Co.—March 3d. Capital stock, \$200,000; 200 shares, \$1,000 each. Trustees: Daniel Turner, H. J. Davis and J. R. Fitch.

PIONEER HOMESTEAD ASSOCIATION.—Mar. 3d. Capital stock, \$103,000; 216 shares, \$500 each. Trustees: J. W. Parker, W. P. Harrison, Geo. H. Hallett, F. Cyriot, J. Duncan, David Dwyer and Edward Babson.

FUEL COÖPERATIVE UNION.—March 5th. Capital stock, \$20,000; 1,000 shares, \$20 each. Trustees: L. W. Ransom, E. F. Bunnell and H. J. Tilden.

SPECTACLES.—The finest article is to be found at Mullers, Montgomery street, near Bush. Give him a call.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
March 7, 1868.

City Stocks.

Sales have been limited and the market without animation. A few shares of California Steam Navigation Company stock sold at 75 per cent. North Beach and Mission Railroad obtained \$60 50, and Sutter Street Railroad (preferred) \$18 50. Pacific Insurance realized \$117. The San Francisco Insurance Company holds its annual meeting on the evening of the 17th inst. The opinion is gaining ground that at the annual meeting of the Spring Valley Water Company, on the 17th inst., the stockholders will prefer to levy an assessment rather than increase the capital stock \$2,000,000, as proposed. Virginia and Gold Hill Water Company stock sold at 77½ per cent., or \$93 75 per share, the par value being \$250.

The following is an interesting tabular statement of the indebtedness, etc., of California Counties, as recently reported by the Assembly Committee:

COUNTIES.	County Debits.	Rate of Interest per cent.	Percentage of taxes levied for county purposes.	Assessed Value of real and personal property.	Estimated population of California and Indians.
Alameda.....	\$34,000 00	10	3 07	\$6,670,000	15,430
Alpine.....	10,000 00	6	.....	450,000	.....
Amador.....	32,152 10	10	1 90	2,048,943	11,000
Battle.....	77,515 00	10	1 82	5,128,338	9,350
Calaveras.....	206,240 00	8-10	4 00	1,373,496	10,732
Colusa.....	24,000 00	10	0 84½	2,077,611	3,600
Contra Costa.....	41,000 00	10	1 68	2,673,963	8,000
Del Norte.....	12,000 00	10	1 02	415,289	1,200
El Dorado.....	262,715 11	10	.....	2,331,538	15,000
Fresno.....	19,438 00	10	1 67	1,209,698	3,000
Humboldt.....	20,000 00	.....	.....	2,200,000	5,330
Inyo.....	3,000 00	.....	.....	800,000	.....
Kern.....	3,000 00	.....	.....	819,825	.....
Klamath.....	22,855 47	10	1 87	341,187	600
Lake.....	.....	.....	.....	335,088	3,350
Lassen.....	15,000 00	.....	.....	750,000	1,420
Los Angeles.....	177,000 00	7	2 37	2,556,093	12,000
Marietta.....	.....	.....	.....	2,239,073	5,000
Mariposa.....	47,159 00	10	.....	1,237,476	4,170
Mendocino.....	55,672 53	10	1 82	2,119,880	6,200
Merced.....	15,000 00	.....	.....	1,244,872	1,800
Monterey.....	15,000 00	10	1 60	259,665	700
Monterey.....	20,000 00	.....	.....	1,419,677	5,000
Napa.....	15,000 00	10	2 05	3,357,273	6,000
Nevada.....	22,033 00	10	0 62	4,847,287	16,538
Placer.....	233,340 00	8	1 12	4,105,338	12,000
Plumas.....	8,000 00	.....	.....	1,192,321	3,670
Sacramento.....	742,530 24	10	1 56	9,474,193	23,000
S. Bernardino.....	21,007 00	7	.....	685,201	2,620
San Diego.....	90,255 14	10	1 35	531,393	1,500
San Francisco.....	4,768,063 00	6-7-10	1 97	102,034,727	125,000
San Joaquin.....	454,000 00	7-8-10	.....	3,575,018	11,140
S. Luis Obispo.....	36,801 00	.....	.....	758,321	2,850
San Mateo.....	40,000 00	.....	0 87	2,700,000	5,148
Santa Barbara.....	40,000 00	.....	1 74	2,711,868	5,470
Santa Clara.....	466,500 00	7-12	.....	3,252,372	30,000
Santa Cruz.....	30,000 00	10	1 70	1,431,739	6,500
Shasta.....	52,739 00	10	59 14	1,024,182	5,886
Sierra.....	50,635 00	10	1 60	1,630,698	7,000
Siskiyou.....	61,618 10	10	1 27	3,283,535	6,000
Sonoma.....	149,834 00	7-10	.....	3,044,120	15,850
Solano.....	20,000 00	.....	.....	3,346,686	23,280
Stanislaus.....	20,000 00	.....	.....	2,711,868	5,470
Sutter.....	5,505 50	.....	1 37	1,732,029	5,100
Tehama.....	88,746 00	10	.....	1,588,508	3,386
Trinity.....	70,000 00	10	1 80	613,401	2,200
Tulare.....	22,000 00	.....	.....	1,200,000	4,500
Tuolumne.....	515,292 91	10	1 67	1,320,565	14,000
Yolo.....	49,371 76	10	1 35	2,100,098	7,000
Yuba.....	187,400 00	10	.....	4,150,500	10,420
Totals.....	\$9,757,538 27	.....	.....	\$221,270,608	493,972

The transactions in real estate were unusually active and important throughout the month of February, 614 sales being effected against 433 in the month of January. In the number of mortgages February shows 252 against 205 in the preceding month, and in releases 188 against 168 for January. These statistics evidence the rage for this kind of property, which many believe is becoming inflated much beyond its real value. In the January sales the amount of purchase money secured by mortgage was \$184,000, and in the February sales no less than \$384,700 were so secured, being an increase of over \$200,000. The remarkable amount of \$2,500,000 changed hands in the same month. There is no doubt that very many purchases have been made for prices much above the real value of the property, and for more than it is likely to pay interest on in several years to come. Rents are already sufficiently high, and it is doubtful whether they can be advanced with safety. The condition of business generally is not active enough, nor sufficiently remunerative to warrant such a move. Cautious men are beginning to hold back a little, and are more inclined to look before they leap. Tying up large sums in lots which will require years to be worth the amounts paid for them, is not exactly the most profitable kind of business, and if persisted in will bring many to grief.

Mining Share Market.

The activity noted for some time past in the mining share market continues unabated, and, as will be seen in another column, the transactions in February exceed those of any other month since the organization of the Board. On Tuesday and Wednesday of this week a decided break manifested itself, but on Thursday prices rallied, and the market has been gaining firmness up to the close of our report. During the period under review, the developments in the various claims have not been very extensive, nor have new points been reached not before noticed. The inclemency of the weather has greatly interfered with the hauling of ores, as well as the forwarding of bullion to this city; however, the present pleasant weather, it is to be hoped, will continue, so that the silver river may resume its wonted activity, and the routes of travel gain greater regularity. During the month of February \$179,734 in bullion was shipped to this city from Wells, Fargo & Co.'s office in Gold Hill, Nevada.

SAVAGE—exhibited greater activity than last week, upwards of 3,000 shares having changed hands at the regular sessions, receding from \$139 to \$163 50, rallying to

\$180, and at the close selling for \$178. Of the 1,001 tons of ore extracted during the week ending February 29th, the north mine, on the third station, contributed 629 tons. The approximate value is given at \$34 94 per ton against \$30 02 in the previous week. A winze from Mason's Spur, on the second station, is said to show ore at a depth of twenty-two feet. The north drift, on the fourth station, still has bunches and streaks of good ore, and the main breasts of the south mine, on the same level, look as well as ever, but the ore from the latter point does not "mill" as well as might be expected from its appearance. In the north drift, on the fifth station, the ore has been followed about twenty feet, and is reported to show some improvement, being of a very good quality. In the south drift, same level, they have reached what appears to be the main ledge, and the quartz is said to be hard and similar to that on the fourth station, showing ore worth \$30 to \$35 per ton. Owing to the bad condition of the roads, ore has accumulated so rapidly that the force in the mine had to be reduced. The receipts, so far, for February account, are stated at \$130,000. The usual dividend will be paid.

IMPERIAL—has been less active, declining from \$255 to \$235, advancing to \$265, and closing at \$267 50. For the month of February, the receipts of bullion foot up \$63,028 07 against \$43,883 in January. The Alta mine continues to yield about 75 tons of ore per day, and the Holmes mine 15 tons. The result of working 46½ tons of ore extracted from the west drift will be reported with the first shipment of bullion of the present month. Drifting will soon be vigorously commenced. The machinery continues to run well.

KENTUCK—was in the market to a moderate extent, opening at \$285½, declining to \$275, rallying to \$290, and at the close realizing \$285. The receipts of bullion for account of February, amount to \$20,422 41.

GOLD HILL QUARTZ—is obtaining a little more notice, selling at \$95½. This is one of the few stocks that did not participate in the recent very marked advance of claims on the Comstock lode. The bullion product of February amounted to about \$5,000. About twenty tons of ore are at present manipulated every twenty-four hours. The prospects for March are considered more favorable.

OVERMAN—sold to a large extent, hitherto at the open and regular sessions, the sales comprising nearly 3,000 shares, falling from \$205 to \$140, improving to \$195, and closing at \$180. Since our last issue, bullion to the amount of \$3,000 has been received at the office in this city. The 361 and 500 levels are reported as showing up change, and the mine, generally, is said to look well.

COLLIER-POTOSI—has been sought for to the usual extent, declining from \$310 to \$189 50, then selling at \$196 seller's, and closing at \$193. The drifts on the 352 station have resulted unsatisfactorily, and work has been suspended in that section of the mine. In the new shaft the west wall is said to grow harder as the work penetrates it. The product of the old mine for the week ending February 27th, amounted to 71 tons of ore against 78 tons the previous week, and during the same time, 200 tons were sent to custom mills against 530 tons in the previous week. No letters have been received for some days.

CROWN POINT—sales have been small at \$1,890 to \$1,825, closing at \$1,865. Work will soon be resumed in the drifts, and operations commenced at the 800 level. The product of the ore on hand and reduced in February yielded \$37,250.

HALE & NONCROSS—a few feet changed hands, for election purposes, at about \$8,000. The annual meeting takes place on the 11th inst. The latest advices from the mine state that the face in the north drift, shows four feet of ore, which will mill \$40 to the ton.

AMADOR—rose to \$255, closing at \$330 h. 30. The bullion receipts for February amount to \$48,000. Recent reports, based upon survey, confirm the richness of this mine. The north level from the Bader shaft is in about ninety feet, showing a ledge four feet wide, and is producing some very fine rock. The south level has attained a distance of thirty-six feet, and in the last ten feet the ledge came in again, showing a width of some six inches. This company has now \$56,000 on hand. A dividend of \$6 per share is payable to-day, and another one of \$4 or \$5 may be expected about the 15th inst.

GOULD & CURRY—continues to be well maintained, advancing from \$640 to \$690, receding to \$595, rallying to \$625, and closing at \$640. The old chambers of this mine continue to produce the usual quantity of ore; the lower levels are full of water.

ALPHA—was in the market at \$1,300 to \$1,250. **YELLOW JACKET** sold at \$1,250 to \$1,145, rose to \$1,255, and closed at \$1,240. **BELCHER** declined from \$285 to \$259, advanced to \$310, and closed at \$300. **OPERA** receded from \$168 to \$147, and closed at \$186. **BULLION** realized \$60½, then \$55, and at the close sold at \$58.

EMPIRE—met with little inquiry, selling at \$250 to \$280. **EXCHEQUER** opened at \$40, declined to \$34, rose to \$46, and closed at \$47. **LADY BRYAN** declined from \$30 to \$19, then sold at \$26, and closed at \$30. **SCORPION** BELCHER receded from \$19 to \$12, rallied to \$20, and closed at \$18 50.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,541,563; open sessions, \$493,011—total, \$2,034,574.

The sales in February show an aggregate of \$9,716,596, being the heaviest amount of transactions since the organization of the Board, and \$1,017,662 in excess of January.

INCOMBUSTIBLE CLOTHING, made so by being saturated with a solution of tungstate of soda, is now the rule among the ballet dancers at the Queen's theater, London.

IRON CASTINGS are bronzed by the Tucker Manufacturing Co., Boston, by coating them with a thin layer of some vegetable oil, and exposing them to a moderate heat.

AN OLD ENGINE—The shops of the Boston and Albany road at Springfield employ about 300 men, and six old engines are under repairs, among them the freight engine "Buffalo," which has been on the road eighteen or twenty years.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, Feb. 22d: The owners of the Sam Booth, Alart, and Esmeralda properties, adjoining the Tarshish ground on Monitor mountain, are working slowly in with the Alpine tunnel. Good ore is occasionally found, but they are not far enough from the surface action of air and water, to expect much yet.

The Lateral tunnel of the Monitor C. M. Co. is getting fast underground. The whole length of this tunnel is now over 55 ft., and in decomposed quartz all the way. Some black sulphurets taken from there this week look well, but whether they are precious or otherwise has not been determined.

Mr. L. Chalmers put a force at work on Wednesday, on his Alpha claim, for the purpose of securing it under the laws of the district.

The Morning Star shaft is now down 100 ft., and is running in as pretty clay casing as one need see.

The Leviathan Co. finding it impossible to prosecute the work of opening their claim as it should be, without additional ventilation, have commenced raising a shaft out.

Chronicle, Feb. 22d: Brown & Kent this week resumed work on the Rippon claim. This company intend pushing work on this claim and satisfy themselves as to its value.

Amador County.

Jackson Ledger, Feb. 29th: Kearsing's mill in this place is now running on the tailings from the Coney & Bigelow mill, and with the Ambler process are saving from 1,000 to 1,500 lbs. of rich sulphurets per day.

J. C. Fall, superintendent of the old Keystone mine and mill at Amador City, is now putting up machinery for saving sulphurets by the Ambler process. The sulphurets from the mine have proved to be very rich—paying \$200 and \$300 per ton.

The Coney & Bigelow mill will soon have 10 additional stamps placed in their mill, making 26 in all.

It is in contemplation by the company owning the Amador mine, to put up machinery and go to work on it in the spring.

Dispatch, Feb. 29th: The company on the McAdams & Hubbard mine, near Jackson, under the title of Casco Co., are prosecuting work with great energy. Their mill and ditch are nearly completed.

Mariposa County.

Gazette, Feb. 29th: Early this week, we paid a visit to the Oaks & Reese mine in Hunter's Valley. Through the kindness of Mr. John Cassell, the Superintendent, we were shown over the premises; had a nice ride in the car down the skip, and as a finale were presented with two fine specimens of gold-bearing ore. The works on this mine, in our judgment, are about the finest in this section of the State.

A company of Chinamen have bought the property of Beach & Co., formerly Mr. Jee's, at Mormon Bar. The buildings will be removed, and the entire flat mined out. The price paid was \$700.

Nevada County.

Transcript, Feb. 27th: It is probable that a larger number of companies are working between the Sugar Loaf and Blue Tent than have been engaged in mining within that range for several years. Several companies are engaged in washing on Selby Hill. They all have abundance of water and seem to be doing well.

Yesterday, we were favored by a gentle falling of the dews of heaven, with indications that it will keep up its lick, so that the snow will be removed and the miners be enabled to resume work.

Feb. 28th: Thales Curtis is engaged in taking down the Redan engine and hoisting works, located near the Ophir mine in Grass Valley township, for the purpose of removing the machinery to Canada Hill in this township. It belongs to Butterworth, Robinson & Co., and is, we understand, to be placed upon a mine near Canada Hill.

Feb. 29th: Wm. Durham offers for sale one-seventh of the Remington Hill ditch, and also several interests in mining property at Chalk Bluff.

March 3d: Very little of the kind of mining which prospers usually during rainy seasons has been done in this county for five or six months. The present season, with its continued and severe storms, has been more disastrous to hydraulic mines than any season that our miners have experienced for many years. For several months there has scarcely been a ditch in the county which was in a condition to carry water; and after they were repaired the cold weather froze up every stream, while snow cover-

ed to the depth of several feet many mining claims. The clearing out of tailings from the beds of creeks, and the deposit of heavy banks of snow as reservoirs from which the miner may draw water late in the summer, are some of the advantages of such a winter as we have just experienced; but these will not pay for the damage to mining claims, and loss of time in consequence of the "heavy wet" and "big freeze."

We saw some fine specimens of quartz from the Pittsburgh mine yesterday. The ledge looks first-rate, the rock is filled with rich sulphurets and shows considerable free gold.

Gazette, Feb. 27th: About four weeks since, a quartz ledge was discovered near Bear river, and about 14 miles from Grass Valley, the rocks taken from the croppings of which exhibited free gold in considerable quantity. The Deeds Co., composed of the original discoverers, have located their claims, and are now engaged in prospecting the same, with good indications of having struck a rich thing.

Feb. 28th: W. H. Rodda, superintendent of the North Star mine, speaks very highly of the Hendy concentrators. The company have eight of the concentrators in operation at the mill, and Rodda says they save 95 per cent. of the sulphurets in the rock crushed.

Feb. 29th: The capital stock of the North Bloomfield Gravel Co. has recently been increased to \$800,000. The water-right of this company is one of the best in the county, and will afford 3,000 inches nearly the whole year. It is expected that the ditch will be commenced early this spring.

Grass Valley *National*, Feb. 28th: We learn that the North Star Co. at French Lead contemplate the erection of works similar to those in operation at the Eureka mine, for obtaining the gold from the sulphurets.

Grass Valley *Union*, Feb. 27th: The town site of Selby Flat, once a lively town, is being washed away by the miners. The houses were torn down before the mining commenced.

The Nevada Foundry is planing some heavy mortars for Crittenden & Co., of French Corral.

Placer County.

Dutch Flat Enquirer, Feb. 29th: The arastras of Messrs. Bakers have been completed and are now in running order.

The Dutch Flat Claim resumed washing on last Thursday. This claim employs 400 inches of water, and seven men.

The Dutch Flat Co. are still actively prospecting for the Blue Lead. Their shaft is being put down at the rate of ten inches per day. Two shifts are employed at present, and it is thought that a third shift will be added very shortly.

Auburn Stars and Stripes, Feb. 27th: The new proprietors of the New Mexico mine have run a tunnel some 30 feet on the ledge, and taken out about 40 tons of rock, which is now being hauled to C. D. Pugh's mill for crushing. In consequence of the wet weather but little is being done by claim owners now, except to "get a good ready" for operations as soon as the winter storms are over.

Grass Valley *National*, Feb. 27th: The longest line of sluices in this State is at Dutch Flat, 416 12-foot sluice boxes, 6 feet wide, and the average yield of each box is said to be \$25 at each clean up, which is once in four months.

Sierra County.

Downieville Messenger, Feb. 29th: It is reported that the Docile Co., of Alleghany, took out last week, in five days' running, 690 ounces of gold.

At Sawpit Flat the American Co. are working twelve men, and are making from \$8 to \$12 per day to the hand. The Buckeye Co. are working 17 men, and are making from \$6 to \$8 per day to the hand. The Union Co. are working 7 men, and are making an average of \$7 per day to the hand. The New York, Eagle and Union companies are taking out pay dirt, but will not be able to wash up until the weather moderates so as to give them water, when they expect big results. Several hydraulic companies will commence operations as soon as water comes. Sawpit will be a lively camp this spring.

Trinity County.

Journal, Feb. 22d: M. J. Fegan has sold his mining claims at Junction City, for \$6,000.

Several hundred feet of iron pipe will be laid in the Carson & Osgood claim; the gravel prospects \$1 to the pan.

The Washington Fluming Co. have their flume nearly completed.

McGillivray's ditch enterprise will be finished by the end of March; 100 men are now at work on it.

Tuolumne County.

Sonora Democrat, Feb. 29th: We have been shown by Mr. Cooper, one of the proprietors, some very rich rock taken from the Garner mine. It was thoroughly im-

pregnated with fine gold; from which fact and the general appearance of the rock, we are satisfied that the mine will pay enormously. The machinery for a 11-stamp mill, entirely of Sonora manufacture, is already on the ground.

But little has been done at Chinese Camp and Montezuma since the flumes which formerly conveyed water to them were blown down. Around Montezuma some mining is being done with natural water. A little to the northeast of Montezuma is a locality called Red Hill, upon which there are many good claims. In fact the hill is all claimed, and the miners are awaiting the action of the Tuolumne Water Co. with regard to introducing a supply of water. We have conversed with several miners who have claims there and found them sanguine of making money, if that all important fluid could be obtained. Between the Montezuma House and Table Mountain there is a large flat which we are informed only lacks water in order to make it give employment and remunerative wages to a great number of miners.

The Tuttletown correspondent writes: Messrs. Dharhour and Superville are erecting a 10-stamp mill on their mammoth vein. They will have it completed and ready to commence crushing some time in June. They intend to amalgamate the tailings from the mill in arastras, such as were in use in the first attempts at quartz mining; they being of the opinion that arastras will save more gold, either free or in sulphurets, than any of the many patents that have come into use to the detriment of the quartz mining interests.

Messrs. Watters and Co. are repairing their mill and will commence crushing from their rich sulphate vein next month.

Mr. Patterson intends repairing his old mill or building a new one some time this summer. His mine has paid regularly for the last twelve years, and from what I have seen it would yield a fortune to its owner if he had a good mill to crush the ore, and arastras enough to amalgamate it.

Pocket mining, as it is called, is conducted successfully in this vicinity.

The Springfield correspondent writes: The "Sultan" quartz mine, of Messrs. Lucas and Paige, near this town, will soon be in full operation. Its owners will erect a 10-stamp mill as soon as the weather settles. It has already yielded \$3,000 by the mortar and pestle process.

Of our Table Mountain claims I will only say a few words, and wish you would come over and take a look at them yourself. Mr. Richards has, by patience, perseverance and the expenditure of a large amount of hard cash, got his mine, the "Joint Stock," in fine working order and will soon employ a large force of men on it.

Messrs. Clark, Robinson and Leversee have re-opened the once famous "Springfield" claim, and are now preparing to erect the necessary machinery for working it. Its prospects are fine, and no doubt is entertained of it being successfully worked.

Yuba County.

Marysville Appeal, March 1st: A box containing rich specimens was received yesterday by W. H. Knight, from the Pennsylvania claim at Brown's Valley, which beats anything in the auriferous line ever received from that locality. This rock came from a new ledge three feet in width, in the north shaft, and 300 feet from the surface, and is the richest we have ever seen from any mine.

ARIZONA.

Prescott Miner, Feb. 8th: Judge Brooks and Mr. Miller, who own and work a claim in the recently discovered gulch, four miles south of Prescott, found a piece of pure, solid gold, weighing \$58.50, allowing \$17 for the ounce. Besides this piece, they took out on the same day, finer gold to the amount of \$19.

Wm. S. Little and Edward G. Taylor have purchased the Excelsior Ditch and Mining property on Lynx Creek. Price paid, \$3,000. Both gentlemen are old California miners, and understand their business.

Geo. Lount is still working his diggings, close to town, and we understand he is getting enough gold to pay him fair wages.

Fred Heury recently informed us that a piece of rock from a ledge which he discovered and located, at Walnut Grove in 1864, which he sent to San Francisco for the purpose of having it assayed, and from which he recently received a return of contents, yielded 53 per cent. of silver, some gold and lead. He says there is plenty of such rock in the ledge.

The upper tunnel in the Eugenie lode, in Big Bug district, is now in 106 ft. The ledge is very thick, and free gold can occasionally be seen in the rock. Geo. E. Berry, last week, sent us three beautiful specimens of sulphuret ore, which he took

out of this ledge. One of them is composed of black diamond-shaped sulphurets, the edges and outside faces of which are covered with very beautiful figures. The sulphuret ore, when roasted, yields plenty of gold.

The placer miners are putting in their biggest licks. Lewis & Thomas was the only company that had cleaned up when our informant, John Garner, left, and he says they got \$10 to the hand. The other companies, also, expect to get good pay.

Messrs. Gray & Kustel are on their way here from California. As soon as they arrive, we opine, Big Bug mining stock will take a rise. The mill will be started to work, and chlorination works will be erected.

Work on the Chase in Hassayampa district is still being carried on. We have not heard, of late, how the lode looks.

Joe Young has hauled three tons of Chance rock to the Sterling mill, which will be worked by Mr. Reed next week. The owners expect to realize largely from this rock.

The Sterling lode is yielding plenty of rich rock.

The Vulture Mining Co. is doing well, getting plenty of rich rock out of both shafts and tunnels.

COLORADO.

Georgetown Miner, Feb. 13th: From present appearances the coming mining season bids fair to rival all previous ones, in the amount of gold and silver hulsion that will be produced. Even at the present time more bullion is being produced than at any time during the past three years. Every stamp mill in Gilpin county that can be made available for the reduction of ore is at work, and those now lying idle for the want of water will start up as soon as the necessary supply can be obtained.

The ore seam in the Wm. Penn lode has widened to five ft. The ore yields over \$500 per ton.

Mr. Minor, at Mill City, recently obtained from one lode near that place, gold at the rate of \$900 per cord.

The adit on the Belmont lode, at East Argentine, is now driven in some 80 ft., and on a fine body of ore all the way.

We saw, at the First National Bank in Denver last week, 1,484 ozs. of silver hulsion, taken from six tons of ore from the Terrible lode. The ore was reduced at the California works, Black Hawk.

Central City *Register*, Feb. 13th: Mining is still going on in the bed of North Clear Creek below Black Hawk, notwithstanding ice and cold.

On the counter of Warren Hussey & Co. might be seen yesterday, 278 ozs. of gold hulsion, worth in currency, \$6,300.

Parties who are working on the Peck & Thomas lode in Gregory district, have struck a large body of beautiful ore. Samples laid on our table yesterday were sulphurets of copper and iron and carry a large amount of gold and silver. It is being worked on shares.

Denver *News*, Feb. 12th: From assays made by Prof. Schirmer, of ore from the Terrible lode, it is shown that the yield of the last ore taken out is \$1,000 per ton of 2,000 lbs.

DACOTAH.

The *Sweetwater Mines* of Feb. 15th, a paper published at Fort Bridger, D. T., has the following items: The King Solomon lode, in Shoshone district, situated on the east bank of Hermit Creek, has a shaft down 20 ft., carrying pay rock the full width of the shaft. Only one wall rock to the ledge has yet been discovered. From surface indications, the ledge is thought to be upwards of 25 ft. in width. Some 25 tons of rock have been raised from the shaft, all of which prospects well.

On the Col. Mann lode, in the same district, a shaft has been sunk to the depth of 30 ft., carrying the foot and hanging walls clear and well defined the entire distance, and showing a vein of 4 ft. in width. The rock is of a uniform character, and prospects well throughout. There are about 40 tons of pay ore on the surface at the mouth of the shaft.

The Summit lode has a shaft down 15 ft., carrying both foot and hanging walls well defined, and an average width of pay rock 5 ft. wide. The ore from this claim, of which there are some 15 tons, prospects uniformly good.

The owners of the Mahomet ledge are vigorously pushing the work of development on their ledge, and have got to the depth of 25 feet in their main shaft, showing well defined foot and hanging walls of slate, and at the lowest depth a vein of good paying ore $4\frac{1}{2}$ ft. in width. Several assays of their rock have been made, giving results from \$25 to \$138 per ton. This result has given great satisfaction to owners, and encouraged them to push the work of opening their claim as rapidly as the weather at

this season of the year will admit of. They have something like 30 tons of milling ore at the surface, which they believe will pay them handsomely for working.

We hear very favorable accounts of the progress made in developing the Atlantic ledge. They have now reached a depth of 45 ft. in the main shaft. At a point 25 ft. from the surface, a cross drift has been run, showing the distance from foot to hanging wall to be 20 ft. 7 in. In the cross cut, a body of excellent ore has been disclosed 19 ft. in width. Several assays of the rock taken from this cut have been made, giving a result ranging from \$20 to \$100 per ton—the average of six assays gave \$68.40 per ton. The pay rock is of a pale red color, and pronounced by all experts to be of the very best quality.

The Reese River *Renville*, of Feb. 20th, gives the following extracts from a letter written by J. W. Menefee at Rock Creek. He says: "My views of this country are not so extravagant as are held by many. There are quite a number of quartz ledges in this belt, and a great many locations have been made; but I don't think one-twentieth part are worth recording. Three or four of the ledges are large and well defined, and can be traced for several miles; and if they prove half as rich by mill working as it is anticipated they will, this will be one of the best mining camps known at present. Our quartz is all gold-bearing. The placer or gulch diggings are very limited, and I think only a few of them will pay. I would advise my friends who are doing anything not to come out this year. At that time the mines will have been proved to a great extent, and if they are good, there will be room enough for thousands."

IDAHO.

Owyhee *Aralanche*, Feb. 15th: During the last five months a vast amount of work has been performed on the Ida Elmore mine. It is now being worked to a depth of 230 ft., where the ore is richer than ever. A drift has been run, connecting the discovery shaft, on what is known as the New York mine, with the main shaft on the Ida Elmore. This was done for the purpose of demonstrating that these two mines are located on one and the same ledge.

Judgo Watson has discovered a new ledge on War Eagle Mountain, at the head of Wehfoot Gulch. It was struck about 250 ft. north of the northern limits of the Poorman, and on a direct line with that mine. We have been shown pieces of rock from the discovery, and it very much resembles Poorman ore.

Fifty men are now at work in the Oro Fino mine. A very rich chimney has recently been struck in the south works, at a depth of 275 ft. from the surface. The ledge varies in width from four to six feet. The Cosmos mill is running night and day on Oro Fino ore.

The Owyhee mill has worked 200 tons of Golden Chariot ore, and Minear's mill is constantly running on the same, both of which have given satisfactory results.

Engines for hoisting will soon be placed on the Poorman, Golden Chariot, Oro Fino and Rising Star mines in Flint district.

Cope & Co. are busy at work on the Potosi. It keeps up its character for richness, and is increasing in width.

The Excelsior mine in Flint has been handed to the Rising Star Co., who have commenced work thereon.

MONTANA.

Helena *Post*, Feb. 15th: We were yesterday shown a handsome gold brick at the banking house of Nowlan & Weary. It is of pure gold, weighs 50 ozs., and is the product of 25 tons of Oro Cache ore, crushed at the Union City mill, Summit district.

Since our last issue, the lead upon the No. 2 shaft in the Oro Cache lode has opened out into a pocket over eight ft. in width.

A. M. Esler, of the Esler Smelting Works at Argenta, brought to town on Monday 1,300 lbs. of lead and 125 lbs. of argentiferous silver, produced from the mines of Argenta, reduced and cupelled at his furnace.

The Mexican known as Jack Thompson, who discovered the Esmeralda, and one or two other rich lodes, has succeeded in unearthing another rich deposit of mineral during the past week. The lode is situated some seven or eight miles from this place, and immediately back of Prickly Pear City. The discoverer has named it the Mexican Eagle, and it has a crevice some 15 ft. wide. Pieces of the rock which had been subjected to fire were covered with globules of gold. Apparently it is one of the richest leads yet discovered in this vicinity.

NEVADA.

Aurora *Union*, Feb. 22d: The mining news from Pine Grove continues to be of the most encouraging nature, and it does not surprise us in the least to hear every

few days of a new gold brick, worth from \$10,000 to \$20,000, being sent out from that place to swell the circulating medium of the world. We have also been informed that a new discovery has been made about three miles southeast of Pine Grove, which promises to equal any discovery yet made in that section.

Virginia *Trespass*, Feb. 20th: Mr. Wheeler and others arrived from Pine Grove yesterday with 1,129 ozs. of bullion, which was the yield of 575 tons of average ore from the Wheeler mine, and worked at the Pioneer mill. Messrs. E. Ruhlberg & Co. assayed the crude bullion, and procured a bar weighing 80 lbs. The assay shows the bar to contain in gold (659.5 fine) \$15,394.38; silver (160 fine), \$233.63—total, \$15,628.01. Considerable copper is also contained in the bar.

PAHRANAGAT.

Reese River *Renville*, Feb. 21st: We mentioned last week that the materials and fixtures for a complete assay office has been sent forward from this city to the district of Pahrangat, where they are to be attached to the 10-stamp mill recently built at Hiko by Benjamin Evans. To-day the fixtures for still another office in that district have been put up at the establishment of J. S. Currie in this city, and will be dispatched immediately. This latter is to be connected with the mill of the Alameda company.

REESE RIVER.

Renville, Feb. 20th: This morning upwards of 4,000 ozs. of crude bullion were brought into this city from Rigby's mill at San Antonio. The bullion is the product of ore from the Liberty mine. Rigby's mill, which was built for prospecting, and is the least in the State, produced largely of bullion in proportion to its capacity.

Mr. J. O'Dougherty, the Superintendent of the Gilligan mine in Egan Cañon, brought into the city a few days ago, 700 ozs. of crude bullion which were produced in the mill by wet crushing and amalgamation. After being melted in the office of David Lundbom that number of ounces yielded a bar valued at \$1,109.65. Of this amount \$675.04 were silver, and \$434.61 gold. The ore which produced this bullion was taken from the depth of 300 ft. in the mine, at which point the ledge is four feet wide. In comparison to the quality of the ore taken from the upper levels of the Gilligan the proportion of gold is largely increased in favor of that procured from the low depth specified. The change is regarded as singular.

The Austin and Belmont Company's stage brought into the city last night the first bullion produced by the mill of the Combination Co. in Silver Bend district. The lot consisted of 14 large bars. Their aggregate value is less than \$10,000. The bullion is very low, the bars ranging from .345 to .639 fine, giving an average fineness of less than .500. Several of the bars are the result of wet crushing and amalgamation, but the major part is the product of roasted ore.

We learned yesterday from Mr. S. M. Beck, of the Belmont Co., that their location upon the El Dorado ledge had improved greatly in appearance. As they attain depth the ledge is less broken, and the occurrence of small strata of excellent mineral is frequent.

Feb. 21st: To-day Boalt & Stetefeldt received 4,618 ozs.; David Lundbom, 3,000 ozs.; and J. R. Murphy 840 ozs. of crude bullion for melting and assay.

The National Bank received last night by the stage from Belmont two bars of bullion from the Belmont Co., and two bars from Hot Creek.

Last night the stage from Belmont brought to the banking house of John A. Paxton & Co. in this city four bars of bullion, valued at \$3,300, from the mill of the Combination Co. It is finer than the first lot, and averages about .550.

Feb. 22d: The mill of the Monte Cristo Co. in White Pine district, will be completed and ready for working in about ten days. They are taking out ore from the Hidden Treasure ledge, which is said to be of a very high grade. There is little or no work done outside of the operations of the company.

The mill of the Twin River Co. in Ophir Cañon, which has been closed several weeks for repairs, was reopened last Monday evening. It will continue to run steadily, until foul weather interrupts the supply of salt, of which article the mill is short.

Feb. 24th: Rock is now being taken from the 400-ft. level in the Florida mine on Lander Hill. One great chunk was brought up in the car, which it nearly filled, that indicated the stratum of good ore to be from 16 to 18 in. thick. There are about 50 tons of ore on the floor.

Six bars of bullion, valued at \$4,000, from the mill of the Combination Company were

brought into the city by stage yesterday. The bullion is still of low grade, averaging about .500 fine.

J. B. Murphy received to-day 2,000 ozs. of crude bullion for melting and assay.

The mill of the Manhattan Co. which was stopped several days for the repair of its main shaft, is again in motion.

Feb. 25th: Within the past two or three days ore of a peculiar quality has been developed in the Diana mine. It is very dark, almost black in color, and resembles somewhat the dark ore found in the Chaso mine near Yankee Blade. The ore is undoubtedly a very rich black sulphuret of silver, and a competent judge has estimated that it will yield in the mill not less than \$1,000 silver per ton.

Feb. 26th: There arrived in the city last night by the mail stage from Belmont, four bars of bullion from the mill of the Combination Co.

To-day J. R. Murphy received 4,000 ozs., and David Lundbom 2,000 ozs. of crude bullion for melting and assay.

Silver Bend *Reporter*, Feb. 22d: The assay office of the Combination Co. commenced melting on the 14th inst. Up to the 21st inst.—the first week—it turned out and shipped bars of refined bullion weighing in the aggregate 1,592 lbs.

For the past two weeks the weather has been quite pleasant, enabling many miners who during the prevalence of the severe cold period of the previous two months have been compelled to keep to their cabins, to again resume operations of development upon their claims. On the older worked mines of the district—El Dorado, Transylvania, Highbridge, Silver Champion, etc., active operations are in progress. The Combination Co.'s steam hoisting works will be completed in two or three weeks, when a larger force can be employed in their mine than at present. A great many other claims are receiving attention and in early spring will be worked with vigor, and probable success.

During the present week Paxton & Co. have shipped 24 bars of bullion weighing 24,213½ ozs., and the Agency of First National Bank five large bars—the weight of which we did not learn.

HUMBOLDT.

Unionville *Register*, Feb. 22d: the Montezuma smelting works shipped this week, 5,824 ounces of fine bullion, making 9,840 ounces from Oreana this month to date. Most of this bullion is over 966 fine.

Atchison proposes to start the Etna mill, for a short trial run on Chloride ore.

The editor has been on a tour of observation to the Arizona and Manitowoc mines. He says of the Arizona: In all our mining experience and observation, we have never seen anything that looks more promising for a certain future, outside of the Comstock. It is not the quantity of ore which makes this mine so attractive, but its value consists in the fact that the ore is a free ore and can be reduced by simple process, and yields more than double the average of the Comstock ore.

Of the Manitowoc he says: A wide space has been staked out at both sides of the tunnel, 40 feet in width at the south end, and extending well toward the mouth of the tunnel. The ledge has averaged about a foot in width as far as taken out. Several hundred tons of ore have been taken from this slope which yielded at the Pioneer mill about \$80 to the ton. But four men are at work in this mine at present, and the same number in the Arizona. This number of men are able to supply the Pioneer mill with all the ore it can crush; but it is in contemplation to put on a larger force early in the spring, to enable the company to have on hand a supply of ore for the new mill to be erected at an early day.

WASHOE.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia *Enterprise*, Feb. 26th: Fox & Co. have jumped, or relocated, the old and once well-known Charles Caney lead, situated southerly from the Caney, and supposed by many to be an extension of the latter. They propose to at once commence operations for the development of the mine.

Feb. 27th: Most of the mills in this vicinity are again in operation.

Feb. 29th: Over three and a half tons (6,797 pounds) of silver bullion were shipped from this city and Gold Hill during the past week, the total value of which was \$165,566.11.

The contractors are again at work taking out ore from the Sacramento mine for reduction at the Mariposa mill, where it is worked for gold alone, there not being a sufficiency of silver contained in the ore to justify working it by the pan or silver pro-

cess. Other companies situated on Cedar Hill in the vicinity of the Sacramento will soon commence operations. During the coming summer there will be work done on almost every mine on Cedar Hill as far north as the Sutor mine, at the foot of the northern slope of the hill, and even perhaps across the cañon as far as M. L. Winn's famous Irving mine.

March 1st: The Rhode Island mill is being thoroughly overhauled and repaired, and will soon be in perfect order in every respect.

About the first of April a party of six or eight men will leave this city for the purpose of exploring a region of country known to one of the number, and lying between the Black Rock country and the Goose Creek mountains; but, as we understand it, some fifty miles north of the Black Rock country, or about as far north as the furthest limits of the Goose Creek range. The mines are supposed to be silver-bearing quartz veins. The man who is to lead the party is a Dane who lived with the Putes for nearly three years, roaming with them back and forth from Pitt River to the Colorado each year. He tells of another rich region to the southward, but thinks that mentioned above the best, most accessible, and best timbered and watered.

The Lady Bryan Co. are at present taking out some excellent ore. They have just struck into a rich streak or deposit that assays \$81 per ton. About the 6th of March they will ship a bar worth \$700, and the 1st of June they expect to declare a dividend of \$5 per share.

Grass Valley *National*, Feb. 23d: While operating at a mill in Silver City, Nevada, a few years since, we run through arastras a quantity of rock from one of the leads near Devil's Gate, the amalgam from which retorted \$12 to the ounce in gold. We now learn that preparations are being made to work the rock from several leads in the same district by the California process. Pans will be discarded, and blankets and copper plates used exclusively, and the mills in all respects arranged after the California style.

NEW MEXICO.

Thos. Richey writes to the Colorado *Herald* concerning the Cimaron mines, under date of Elizabethtown, Jan. 25th, as follows: The mines, as yet discovered, are not very extensive. The principal gulches are Willow, Grouse and Humbug. When I got here I found the whole country claimed. The bedrock is from 20 to 40 ft. deep in Humbug Gulch and the dirt pays from 20 cts. to \$1 a pan, with fine gold at intervals from the surface down to the bedrock. In our claims there is gold from the grass roots down to a depth of 35 ft., and no bedrock as yet struck. It gives about half a cent to the pan, and the gold is similar to what we used to pan out in Mt. Vernon. There is also some coarse gold. One man of my acquaintance has \$300 worth of nuggets, the smallest about the size of a buckshot, and the largest worth \$7. These are from Willow Gulch. There are a number of bars or gradual slopes running up towards the mountains on either side, rich in fine gold, showing to the pan from five to 10 and even 20 colors.

There was not much mining done last summer excepting at the head of Willow Gulch, where they washed a dry ravine and got \$30,000, working from June until the winter set in and the water failed.

There is talk about building a ditch next summer to bring water from Red river, a distance of 40 miles; \$250,000 have already been subscribed for that purpose.

STEAM PLOWING VS. TEAM PLOWING.—A paper recently published in the London *Artisan* by Mr. David Grigg, has the following: The superiority of the spade over the plow remains undisputed, yet the state of the labor market, especially in England, renders such a system of cultivation impracticable. The chief feature of the advantage in spade-husbandry is the thorough loosening and mixing of the soil, and it is assumed that as it can be better done by steam than by manual or horse labor, the result will be far superior to those grown under other systems. This is claimed to be the result of actual experience, as by substituting steam for animal power a marked improvement in the crops, and a much greater yield was the consequence. One reason for the increased productivity is, that a team of four horses, in plowing a twelve inch furrow, will leave more than 300,000 footprints per acre, and as these will nearly cover the ground, the effect will be to leave a hard subsoil beneath the cultivated ground, which becomes worse with every successive plowing.

THERE are fifty-three thousand miles of railway in Europe.

Mining and Scientific Press.

W. B. EWER.....SENIOR EDITOR.

G. W. M. SMITH. W. B. EWER. A. T. DEWEY.
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Canvassing Agents.

Our Friends can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1868.
Mr. C. T. Ranney is our duly authorized agent for Sacramento County. Nov. 29, 1867.
Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1867.
Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, March 7, 1868.

Notices to Correspondents.

ONE INTERESTED.—We are not in possession of the motives which induced the Legislature to recently vote the sum of \$500, for the purpose of making a survey of the feasibility of more rapidly promoting the outflow of water from the upper Sacramento, San Joaquin, and the lower portion of the Feather River. If the object sought is simply to remove flood waters, more expeditiously from the upper portions of the various deltas, than is now done, this result can only be accomplished at the expense of the occupiers and owners of land in the central portion of the district. As a case in point, we may mention that, during the last heavy flood, which so nearly inundated Sacramento, had the upper waters of the three rivers named been enabled from additional facilities, to have rushed on to and have arrived at the central valley twenty-four hours before they did so, Sacramento must inevitably have been flooded; as in such an event, the Sacramento River would have risen as high or higher than the American River, and simultaneously with the rise in the latter; whilst, fortunately for the city, as things now exist, the full rise of the Sacramento did not take place until some hours after the rise of the American had obtained its highest limits. During the interval between that occurrence with the two rivers, the American River was enabled to discharge a very large amount of its flood water, whilst little if any could have been discharged had the rise been simultaneous, and none, if the rise of the Sacramento had preceded in time and height that of the American.

ASTRO.—What are called double stars, are certain bodies which from observed changes have usually been deemed to be caused by mutual revolutions round each other. The whole number hitherto observed, amounts to more than 6,000. The proportion of those, the double character of which may be doubtful, has not been determined. The number, however, in which a relative change of position has been clearly detected, amounted at the middle of the present century, to not less than 650.

TEUTON, San Francisco.—Bohemia at one period supplied a considerable amount of tin. Professor Colta has described the tin ore found at Graupen, as existing amongst the grey gneiss of the Erzgebirge, which is traversed by a considerable number of small veins, which average from one to two inches in thickness, but sometimes reaching eighteen inches; the veinstone is principally quartz or greisen (quartz and mica, and sometimes decomposed feldspar).

GOLD CONTRACTS IN CONGRESS.—Leading financiers and bankers have framed a bill to be introduced in Congress, which provides that all contracts for the payment of money which, by the parties thereto, are made payable in gold, shall be deemed to be payable in, and shall be paid, in the gold coins of the United States, according to the tenor of such contracts.

AVAILANCHE AT SIERRA BUTTES.—A Downieville telegram dated March 5th, says a snow-slide occurred the day before at Keystone, killing five men and injuring another. The quartz mill, boarding house and two cabins were considerably injured. The wood-pile split the slide and saved the machinery.

Hallidie's Improved Suspension Bridge.

We illustrate to-day a valuable improvement in suspension bridges—the invention of Mr. A. S. Hallidie, of this city, and patented by him in the United States and European countries.

It is a matter of considerable doubt as to when the first suspension bridge was erected—this form of bridge being probably the most simple contrivance for crossing a stream which a tall tree could not span,—and requiring but a small amount of skill in its primitive construction. Before the Christian era, we find the Chinese had such structures in use for crossing deep and wide chasms; and in the time of the Incas, of Peru, with cables made from rawhide, they were employed for a like purpose there—all, however, constructed as suspension bridges, pure and simple, though bearing but slight resemblance, except in fundamental principle, to the suspension bridge of the present day. Although known and employed from time immemorial, there does not seem to have been any considerable engineering skill brought to bear upon them until quite recently; and, strange as it may appear to those gentlemen so fearful of female innovation, the first record we have of any patented invention bearing directly on the matter, is in the year 1811, when an English lady, named Sarah Guppy, of the city of Bristol, obtained a patent for “the construction of bridges without arches or starlings, by means of metallic chains allowed to hang in suitable curves, for the purpose of supporting a road or pavement of the usual structure, or for railroads.” We leave comment to the interested reader.

Mr. Chas. Bender read a paper on suspension bridges before a late meeting of the Polytechnic Association of the American Institute, in which he made the statement that the first bridge of this kind of which we have any knowledge, was built in America, by a man named Finlay, in 1796, over Jacob's Creek, on the turnpike between Uniontown and Greensburg, Pa.

But it was not until 1820 that a practical application was made on anything like a large scale, when Captain Brown erected the Union Bridge across the river Tweed, having a span of 437 feet; the cables being of bar chain. From this date we trace a number of suspension bridges of various spans, to the last and undoubtedly finest structure of all—the bridge across the Ohio at Cincinnati—having a clear span of 1,057 feet, and built by John A. Roebling, who also erected the railroad bridge at Niagara, of 828 feet span.

Various contrivances have been invented and applied, from time to time, to overcome the flexibility of the cables and roadway of suspension bridges, and to negative or prevent that undulating motion so dangerous to the stability of the structure and so detrimental to the traffic over it.

Dredge's system of suspending bars tangent to the curve proposed to effect this, and many bridges were erected on this plan; but it possessed the fatal fault of too many independent points of suspension, which, in practice, proved to be its weakness.

Roebling has secured considerable rigidity at Niagara by an immense timber truss eighteen feet deep, which a heavy goods train only depresses about four inches, and which would be sufficient for all purposes, if it were not for the expansion and contraction of the cables, making a difference in the deflexion of the curve of over two feet, due to the change of temperature between winter and summer, and which thus destroys, to a considerable extent, the useful effect of the truss.

One can readily understand the difficulties to be met with in effecting rigidity in a suspended roadway that will hold good under all variations of temperature and consequent recurring elevation and depression

of the curve of the bridge cables, or chains, from contraction or expansion, which difficulty, we believe, has never until now been successfully overcome.

This is the most important, although not the only feature, in Mr. Hallidie's invention, and is one which he claims to have successfully accomplished. We accord him the full benefit of his claims, remembering that he has been engaged for many years in the construction of bridges, and that the solving of this knotty problem has had the benefit of his practical experience and observation.

Fig. 1 is a side elevation of the bridge. There are two cables, or chains, on each side of the roadway, that pass from the anchorage in the usual manner over the top of the towers. From the summit of tower, A, Fig. 1, the cable or chain hangs in its natural curve to the lowest point, which is at the base of tower B, and where at point B' it passes under the tower foundation plate and is continued on to the anchorage, as shown by the dotted lines. The second cable on the same side of the bridge passes over tower B, and in the same manner reaches tower A, at point A', passing under it, as shown in the drawing. At point C, being center of span, the two cables or chains intersect, and are, usually secured together, the center suspending rod being attached to both cables. Where wire cables are employed, it is preferred at point A' and B' to attach them by means of keys, or other suitable contrivances for adjustment, to iron or steel connection to the anchorages.

It will be seen in the elevation that the suspending rods are attached alternately to the upper and lower cables. This will be better understood by referring to Fig. 3, which is a longitudinal section of the bridge, showing in detail the arrangement for attaching roadways. A and B, Fig. 3, are the two cables or chains—the first suspending rod, a, (commencing from tower A, Fig. 1) being attached to upper cable A; the second rod, h, is attached to lower cable B; the third rod, c, is attached to upper cable A, and so on until the point of intersection (C, Fig. 1) is reached, at which point the suspending rod is attached to both cables, as before stated. At the lower end of each of these, suspending rods are secured by means of adjustable nuts or keys, steps a', b', c', which receive and sustain lateral girders a'', b'', c'', in the manner shown in Figs. 3 and 4. Resting on and secured to these lateral girders at a point half way between the steps, are transverse girders, m, m, on which the roadway is built in the usual manner. The transverse girders, m, m, being situated half way between the points of support, (a', b', c') transmit the load equally to cables or chains A and B, Fig. 3.

Converging or truss rods connect cables A and B together, in the manner shown in Figs. 1 and 3, and in such a manner as to allow necessary change of deflexion of curve from expansion or contraction of the chains or cables, without affecting rigidity of structure or limit of equilibrium of parts.

It is by means of these converging rods, in connection with the arrangement of the chains and cables together, with the lateral girders, that the inventor claims to secure a rigid bridge, as perfectly rigid as it is possible to make a suspension bridge, and a bridge in every way adapted for long spans and railroad travel—combining simplicity of construction with economy of material.

Fig. 2 shows the plan of bridge with method of arranging cables to prevent side oscillation; the cables being more distant from each other at summit of tower than at the base, and somewhat similar in principle to plan adopted at the Cincinnati bridge.

Referring to general view of bridge, it will be seen that a wave passing over the cables or chains becomes negated on reaching the point of intersection, and that the effect of a wave passing any particular

suspending rod is to raise the rod and one end of the two lateral girders resting thereon to the extent of height of wave,—the two transverse girders, on which the roadway is built, being raised to the extent of only one-half the height of wave, thus reducing it to its minimum effect. No such destructive wave as was stated to have been witnessed at the Brighton Chain Pier, and many other suspension bridges, could possibly accumulate under this arrangement; and it would be impossible to overturn the roadway by means of a gale of wind, as in the case of the Wheeling bridge across the Ohio—the attachment of one end of each cable being at the lowest point of suspended roadway.

In the arrangement of the truss rods, they are attached to the cable at the same point as the suspending rods, and secured by means of bolts. These are so arranged at the lower end as to be capable of adjustment. If these truss rods were continued upwards *ad infinitum*, their points of intersection would be in equilibrium, and form a parabolic curve.

This bridge has been favorably commented on by many engineers of eminence. Patents were not secured in France and England until too late for its admission to the late Exposition in Paris, although the inventor went there himself, partly for that purpose.

The cost of constructing this bridge does not exceed that of the ordinary suspension, while it possesses great advantages in point of safety, rigidity and stability.

Mechanics' Institute Election.

The annual election for officers of the Mechanics' Institute was held on Monday last. Two tickets were in the field, and a most spirited and active contest took place between the friends of the rival candidates, the supporters of both tickets being out in large numbers. Although personal issues were to some extent brought into the contest, the best of feeling prevailed throughout, and the canvass resulted in bringing into the treasury a round aggregate of back dues, most of which might otherwise never have been realized. The large proportion of 717 votes were cast, out of a total membership of about 1,000. The officers elected are especially pledged to economy in the matter of a building and the general management of the forthcoming Fair. The result of the balloting was as follows—all the candidates on the regular ticket being elected:

REGULAR.	President.	MEMBERS'.
A. S. Hallidie.....	416 | G. K. Gluyas.....	276
	Vice President.	
J. Wilcox.....	389 | A. C. Austin.....	323
	Treasurer.	
H. L. Davis.....	703 | Thomas Young.....	13
	Corresponding Secretary.	
H. D. Dunn.....	403 | William Hollis.....	307
	Recording Secretary.	
J. T. Holmes.....	389 | J. H. Culver.....	328
	Directors.	
N. R. Coleman.....	416 | H. Rosekrans.....	311
W. C. Feast.....	406 | D. T. Bohen.....	300
N. D. Arnold.....	434 | C. H. Harrison.....	293
A. Doble.....	429 | James Sellers.....	304
L. Farquharson.....	430 | C. L. Tilden.....	307
J. Browning.....	329 | Samuel Smith.....	302
John Hancock.....	412 | Thomas Graham.....	279

—Mr. Young was not a candidate, he having declined the nomination previous to the election in favor of his friend, Mr. Davis.

INSTALLATION OF OFFICERS.

At a regular meeting of the Institute, held on Thursday evening, the late President, G. K. Gluyas, presented his annual address, giving a brief review of the proceedings of the Association for the past year, and concluding with some timely and pertinent suggestions. It was ordered by the Institute that the address be printed in pamphlet form.

After the reading of the address, the Installing Committee proceeded to install the newly-elected officers, Ira P. Rankin, Esq., officiating as chairman. On concluding the ceremony, he complimented the retiring President, and officially introduced to him Mr. Hallidie as his successor. The retiring President gracefully addressed the Institute, thanking them for the support and kindness which had been extended to him during his term of office. He was followed by Mr. Hallidie in a short and modest address, thanking the members for his election, and expressing his intention to give the Institute his best efforts and attention the coming year.

A.S. HALLIDIE'S
RIGID SUSPENSION BRIDGE.

PA TENTED, JULY 2ND 1867

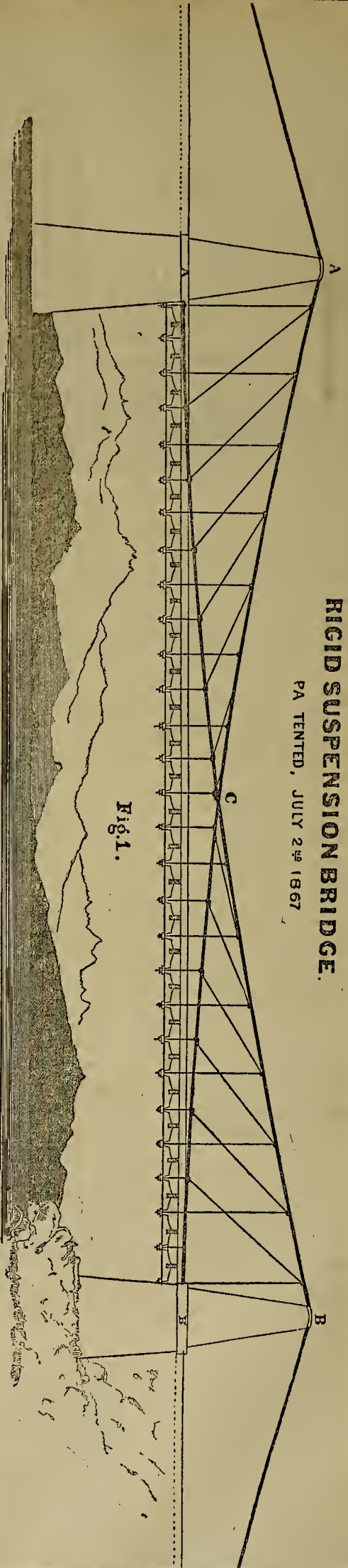


Fig. 1.

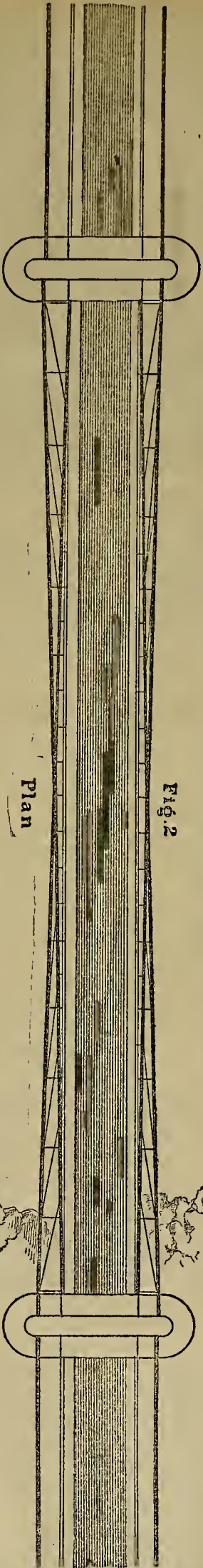
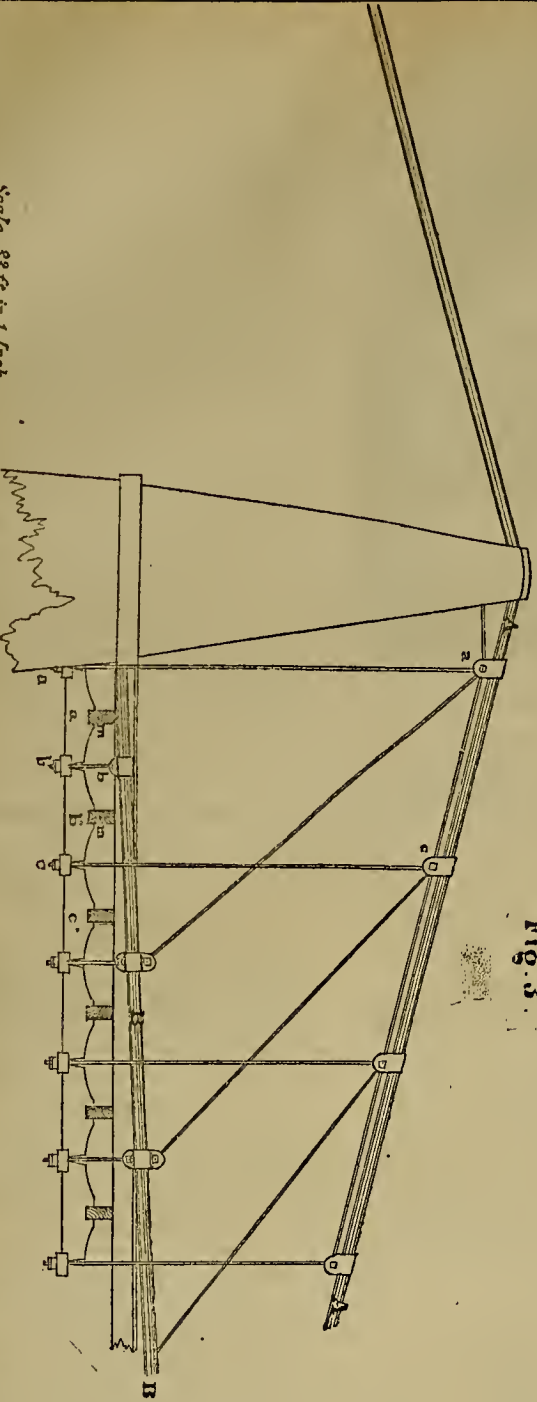


Fig. 2.

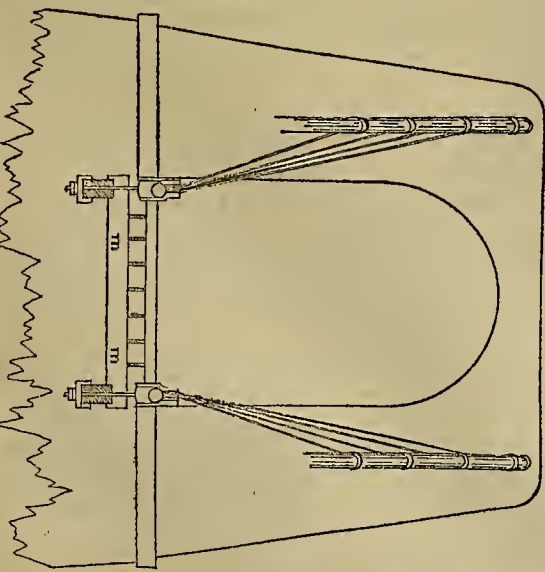
Plan

Fig. 3.



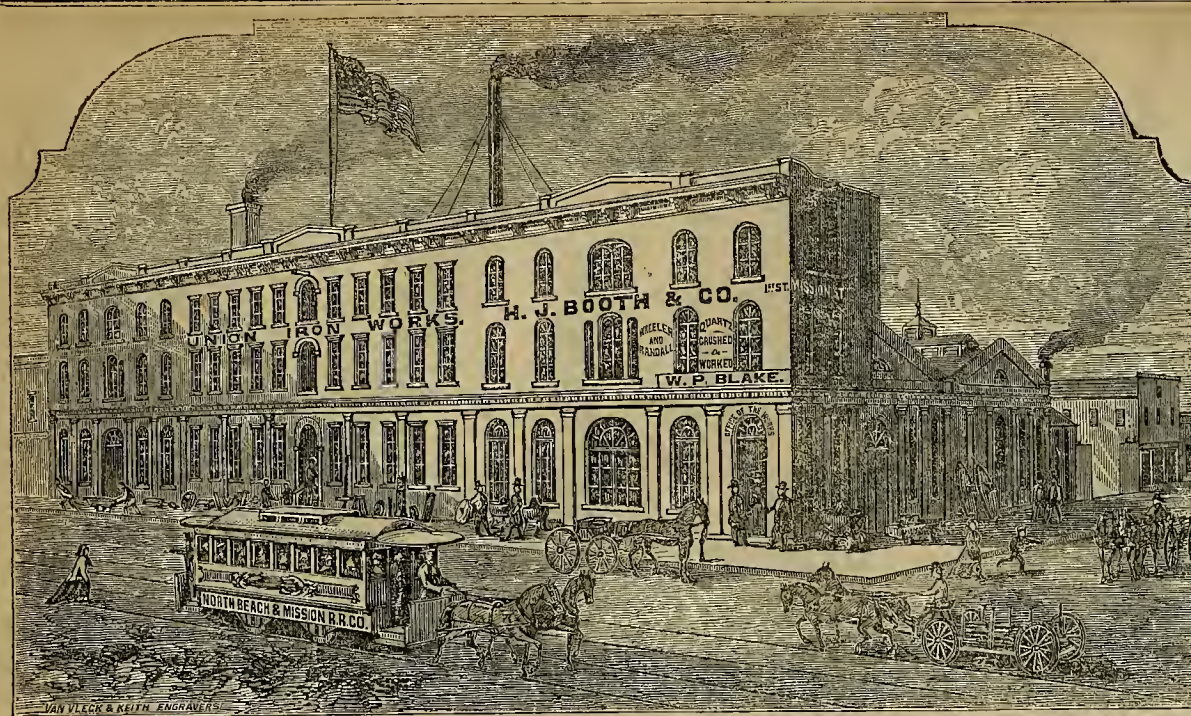
Longitudinal Section

Fig. 4.



Transverse Section

Scale 33 ft. in 1 inch



Established in 1849--Corner First and Mission streets, San Francisco.

HAVING INCREASED OUR FACILITIES IN EVERY DEPARTMENT, WE ARE NOW prepared at the shortest notice and at the most reasonable rates, to furnish all kinds and description of Machinery, including Steam Engines, Quartz Mills, Mining Pumps of all kinds, Hoisting Gear, Gas Work, Laundry Machinery, Architectural and Ornamental Castings, Sugar Mills, Saw and Flour Mills, Water Wheels of all kinds, Hydraulic Hay, Rag, screw and Drop Presses, Coining Machinery, Pile Drivers, Bark and Malt Mills, and all kinds of Castings.

ENGINES.—Marine Engines, Oscillating and Beam; Stern and Side Wheel Boats, Locomotives, Stationary Engines, Horizontal, Upright, Oscillating and Beam, from six to fifty inches diameter. Also, Scott & Eckart's Adjustable Cut-off Regulator—best in use; W. R. Eckart's Balance Valve for Stationary Engines; Woodward's Patent Steam Pump and Fire Engine.

ROLLERS.—Locomotive, Flat, Tubular, Upright, Cylinder and Cornish, and every variety of Boiler Work. All sizes of tubes and pipes for pumps.

PUMPS.—The Excelsior double-acting Force Pumps are manufactured by us. These very superior Pumps are warranted the best, and are fast replacing all other Force Pumps.

AMALGAMATING MACHINERY.—Wheeler & Randall's Improved Tractory Curve Pan, Zenas Wheeler's Improved flat bottom pan, Beldin's pan, Yeatch's tubs, Prater's concentrators, Winkler's pans, Keers' pan, German Barrels, Arastra Gearing, Cible Mills, Settlers of all descriptions, Rotors of all sizes and shapes, for Silver and Gold, Portable Stamp Mills, Straight Batteries, for wood or iron frames, Dry Crushing Batteries, or machines with the latest improvements, every variety of Stamps, Mortars, Cams, Pans and Tubs. **BLAKE'S PATENT QUARTZ CRUSHERS**, of all sizes.

OIL BORING TOOLS AND MACHINERY.—Of the latest and most approved construction, made from drawings lately made by Prof. Blake at the oil wells in Pennsylvania. We have the facilities for working gold and silver quartz and other ores, to test their value, by the hundred weight or ton.

Russia Iron Screens, of all degrees of fineness and of all qualities of iron. All work done in the best manner at the lowest cash prices.

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DUNBAR'S IMPROVEDSelf-Adjusting Piston Packing,
Requires no springs or screws; is always steam tight;
without excessive friction, and never
gets slack or leaky.

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NEW GRINDER AND AMALGAMATOR
HEPBURN & PETERSON'S
AMALGAMATOR AND SEPARATOR,
Knox's Amalgamators,
WITH PALMER'S PATENT STEAM CHEST,
Superior for working either GOLD OR SILVER ORES, and
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years' continual working.
Genuine White Iron Stamp Shoes and Dies

Having been engaged for the past ten years in quartz
mining, and being conversant with all the improvements,
either in Mining or Milling, we are prepared to furnish,
at the shortest notice, the most perfect machinery for reduc-
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PORTLAND, OREGON.Steam Engines, Boilers,
SAW AND CRIST MILLS,MINING MACHINERY, WROUGHT IRON SHUTTER
WORK, AND BLACKSMITHING IN GENERAL.
Corner North-Front and E streets,
18v13-1y One block north of Couch's Wharf.UNION IRON WORKS,
Sacramento.WILLIAMS, ROOT & NEILSON,
MANUFACTURERS OFCROSS' PATENT BOILER FEEDER,
STEAM ENGINES, BOILERS,
And all kinds of Mining Machinery.

Also, Hay and Wine Presses made and repaired
with neatness, durability and dispatch.
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PACKING, for new and old Cylinders, manufactured
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Quartz, Saw and Grist Mill Irons, Steam
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Mining and Irrigating Pumps, Car Wheels, Derrick Irons,
House Fronts, Iron Fencing, Railyard Railings, etc.,
at San Francisco prices. Orders solicited
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Manufacturers of

Marine and Stationary Engines
Quartz Machinery, Saw, Flour and Sugar Mills, Mining
Pumps, Hoisting Gear, Agricultural Implements, etc.

—ALSO—
Wine, Cider, Cotton and Tobacco Presses
of the latest Improved Patterns

STEAM ENGINES AND BOILERS,
Of all sizes, constantly on hand; Quartz Mill Shoes and
Dies warranted to be made of the best white iron.

Dunbar's Improved Self-Adjusting Piston-
Packing, requires no springs or screws; is always steam-
tight; without excessive friction, and never gets slack or
leaky.

MACHINERY OF ALL DESCRIPTIONS
Bought, sold, or exchanged. Bolt Cutting and Castings at
the lowest market rates.

6v11-1y DEVOE, DINSMORE & CO

LEWIS COFFEY, J. S. WILSON
LEWIS COFFEY & WILSON,
Steam Boiler & Sheet Iron Works.

THE only exclusively Boiler Making establishment, on the
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Work, executed as ordered, and warranted as to quality.
Old Stand, corner of Bush and Market streets, opposite
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CALIFORNIA BRASS FOUNDRY.
No. 125 First street, opposite Minna,
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ALL kinds of Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sinealikes,
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Connec-
tions of all sizes and patterns, furnished with dispatch.

PRICES MODERATE. 13v13-1y
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MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Moore's Grinder and Amalgamator, Brodie's
Improved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.

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JOHN LOCHHEAD'S
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Beale street, near Mission, San Francisco.

STEAM ENGINES OF EVERY DESCRIPTION BUILT
to order—Marine, Stationary, or Locomotive.

HOISTING AND PUMPING ENGINES,
PORTABLE ENGINES, OF ALL SIZES.

DONKEY PUMPS, Etc., Etc., Etc.
The attention of the parties engaged in shipping or inland
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Superior Workmanship
of Mr. LOCHHEAD, who has been in the business in San
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STEAM ENGINES.
Screw Propellers of all kinds, and Steam Boat Machinery
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Near corner of King and Third streets, San Francisco.

MARINE ENGINES,
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MACHINERY FORGING.
All kinds of Ship-smithing and Mill work manufactured to
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All work done guaranteed. 13v14-1y

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TOOL AND FILE FACTORY.
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Job Grinding and Polishing done at shortest notice.
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STEAM ENGINES,
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made and repaired at shortest notice.
23- Particular attention paid to repairing Reynold's Cut-off
5v15q

A New FIBER.—Robert Davidson brought into our office, the other day, several stems of a plant in some respects resembling hemp, which grows in the vicinity of Sinker and Catharine creeks, but with a fiber much finer, and possessing a greater degree of tension than either hemp or flax. The stem is enveloped in a thick covering of this fibrous material, is nearly half an inch in diameter at the bottom, grows to a height of four or five feet, and is surmounted with pods two or three inches in length, inclosing small oblong red seeds, which are winged like those of the dandelion or thistle. It is called silk-weed by some. If some one, possessing leisure and opportunity to experiment in such things, would take the matter in hand, without a doubt its cultivation could be rendered profitable; for we see no reason why a superior article of cordage and cloth of fine texture and durability could not be manufactured from it.—Oryhee Avalanche.

FOUNDRY ACCIDENT.—A singular accident recently occurred at one of the iron foundries in Chester county, Pa. The workmen, after having filled the furnace previous to casting, threw a quantity of iron scraps covered with snow and ice upon the stock, which prevented the escape of the gas generated at the bottom of the furnace, causing it to flow back into the chambers leading to the fan. An explosion was the immediate result. The cast iron fan was shattered, the staples and hinges torn from the door, the windows of the engine room were blown out, the engineer going out through one of them, but without receiving any injury. Nobody was hurt; but the damage done to the foundry was considerable.

To Foundrymen and Blacksmiths.

LUMP LEHIGH AND CUMBERLAND COAL, IN ANY quantity, sacked and shipped to any part of the country, by
JAS. R. DYKE, Coal Dealer,
413 and 415 Pacific street,
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San Francisco.
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Sure Cure.

I PROMISE TO CURE RHEUMATISM, NEURALGIA, Gout in the Feet or Ankles, Chills and Fever, Dyspepsia, Piles, Mumps, Ringbone, and all kinds of Sores, in men or animals, and no matter of how long standing, whether inherited or otherwise. Also, Heart Disease, Sore Eyes, Sore Throat, Diphtheria, Secret Diseases of all kinds cured. DR. JAMES BROWN, 340 Broadway, between Sansone and Montgomery streets, San Francisco.
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EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS of Hardware and Carriage Work. Damaged Goods re-Japanned; Sewing Machines Japanned and Ornamented. 513 Fourth Street, between Bryant and Welch, San Francisco. 5v16-3m

N. A. BALL & CO., Prop'rs.

Copperas! Copperas!

75,000 LBS. IMPORTED COPPERAS—SULPHATE of Iron—for sale in lots to suit, by
BENJ. BRADY, 104 California street,
S. W. corner Davis, up stairs.
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"The Excellent"

Will not repair broken limbs nor leaky roofs; but it will quiet the nervous and brace up the weak. It will give more comfort to those suffering from dyspepsia or indigestion than any preparation you ever tasted or heard of. The first physicians use it, and it is made by
HARRY & PATTEN,
413 Montgomery street, San Francisco.
8v16-3m

To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE in Mining and doing business connected with Mining Operations, offers his services to parties wishing to purchase mines, to examine and report upon them, to buy, report upon the titles of any mine offered for sale, and to transact any business connected with mining operations in this district. Also, he would take the Superintendentcy of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address,
JAMES DELAYAN,
Lone Pine, Inyo Co., Cal. 4v16-1f

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JACKSON STREET,
BETWEEN MONTGOMERY AND KEARNY STS.,
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Prices varying from \$1.50 to \$2 per day for Board and Room.
FINE BATH HOUSE AND BARBER SHOP ATTACHED TO THE HOUSE.

23- Terms belonging to the House will be in attendance at all the hours and days to convey passengers to the House FREE OF CHARGE, and to any part of the city for 50 cents.
24v12 F. E. WEYGANT, Proprietor.

BELDUKE & CO.,

OF CONCORD, N. H.,

Long employed at the celebrated firm of Downing & Son have opened a manufactory of



Concord Wagons,

Of all descriptions, at No. 820 and 822 Folsom street, between Fourth and Fifth streets, San Francisco.
Orders received for Buggies, Expresses, and Light and Heavy Thorough-brace. Carriage Springs made to order, 15v15 1am 6m

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DIAMONDS IN THE LABORATORY.—A French chemist has made diamonds from carbon in the laboratory, but at a cost of about three times that of the native gems.

Practical Mining and Milling Processes Described.

BEAN'S HISTORY AND DIRECTORY —OF— NEVADA COUNTY, CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Chlorine and other processes; Geological Formation of the most noted mines in California, etc., etc.

COMPILED BY EDWIN F. BEAN.
Editor and Publisher of the Nevada Daily Gazette.

Price, \$5.—For sale at the office of the Mining and Scientific Press, San Francisco. 13v15fr

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Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family Journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

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CONTINUE TO
USE HUCKS & LAMBERT'S
CELEBRATED
H & L Axle Grease,
To which you have given so decided a preference for the last
FOURTEEN YEARS,
It is the only reliable article
IN THE MARKET

Every care will continue to be used to sustain the high reputation the H & L Axle Grease, has so long and justly attained.

Be sure and ask for the H & L brand, and see that the

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IS ON THE COVER OF THE PACKAGE
NONE OTHER IS GENUINE.
FOR SALE IN EVERY STATE IN THE UNION.
6v16cwt

Fire Extinguisher.



This Extinguisher puts out fire instantly; is harmless to health and property; always ready for use; indispensable for stores, hotels, mills, etc. The following is an extract from the Report of the Committee of the last State Fair: "We have no hesitation in reporting that the Extinguisher is an invaluable invention, and one which must result, if brought into general use, in a great saving of property and consequent benefit to community at large. We therefore respectfully recommend the award of a special premium." William Gillen, Chief Engineer Sacramento Fire Department; Julius Weizer, Agent Pacific Ins. Co.; Cyrus Collins, Solicitor Pacific Ins. Co.; D. W. Earl, Ins. Agent; Paschal Higgins, Sacramento Union. Office of U. S. Fire Extinguisher, No. 117 Sutter street, under Lick House, San Francisco. 8v16thma **EDWARD L. LEVEY, Gen'l Agent.**

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TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Wireworks Company.)

—ALSO—
Steam Gauges, a general assortment of Hardware, Cutlery, and MECHANICS' TOOLS.

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This invention constitutes a most simple and inexpensive means for preventing the ingress of water beneath outside doors. It is effective and cheap, and can be readily

Adjusted to any Door In Use,
And presents neither hindrance to entrance nor unsightly incumbrance to the nearest doorway.

COUNTRY RIGHTS FOR SALE.
FRANK ABELL,
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TRY IT! PRESERVED COFFEE,

PREPARED FROM
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JAVA COFFEE,

Condensed in the form of a Paste, by a process patented September 3d, 1867. One ounce equal to two of the best Ground Coffee, and suitable for any gentleman's table. Preserves its strength and flavor without deterioration in any climate, and without regard to length of time.

If you want Chicory, apply it yourself.
Olive our Coffee a trial, and if it is not fifty per cent. cheaper and better than any other, we will return your money.

FRANK SILVER & CO.,
No. 10 Stevenson street, near First,
2v15-3m San Francisco.

CARD.

THE UNDERSIGNED, SINCE DISPOSING OF HIS Gallery on Montgomery street, has seldom been in the street without being asked where the best photographs were taken. Now, for the benefit of his friends and the public generally, he would recommend them to go to the COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY, No. 32 Kearny street, now owned and occupied by Messrs. BAILEY & SCRIPTURE. Both of these gentlemen are professional photographic artists—one of them having been in the business more than twenty years—and cannot be surpassed by any one in the State.

Persons wishing photographs taken will do well to give them a call. The above named gallery is one of the finest and most convenient in San Francisco, it being situated on the second floor, and its proprietors are the most accommodating and gentlemanly men in the business.

N. B.—Prices as low as at any other Gallery in the city.
Solar Printing for the Trade.
Also Stereoscopic Views of California Scenery, at wholesale and retail, at the Cosmopolitan Art and Photographic Gallery, No. 322 Kearny street.
7v15-3m **BAILEY & SCRIPTURE,**
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Machinists and Foundries.

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Manufacturers of Machinery for

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Steam Engines of all Kinds.
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MINING PUMPS, HOISTING WORKS,
OIL WELL TOOLS, ROCK BREAKERS,

—AND—

Machinery and Castings of all kinds, either of Iron or Brass.

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Shoes and Dies of White Iron, manufactured for and imported by us expressly for this purpose, and will last 25 per cent. longer than any other made on this coast.

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Fire or Tubular Boilers, with plain circular or spiral courses. Upright Fire or Tubular Boilers, Locomotive and Marine Boilers, and Wrought Iron Tanks of every description.

Hydraulic Pipe supplied at reasonable rates. In ordering, give the quantity of water to be supplied, height of the fall, and total length of pipe, so as to enable the firm to determine the diameter of the pipe and thickness of iron to be used.

Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in repair with promptness.

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Plans, Drawings and Specifications.—The firm is prepared to make out Plans and Specifications, receive estimates, and superintend the Erection of any Machinery that may be entrusted to their care.

To Inventors.—The firm is prepared to assist in developing the Plans of those who have the ideas, but not the practical experience necessary to put the same in form, by making Drawings of their Inventions, giving them the benefit of their practical knowledge in the construction of Machinery, and attending to the manufacture and introduction of their inventions. 13v18fr



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Repairing promptly and neatly attended to. 13v11

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President.

Mining Secretary.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST five years as Secretary of various mining companies, feels fully competent to serve in that capacity. Any parties wishing to secure the services of a Secretary can be accommodated on reasonable terms. Information given, and all necessary papers correctly made out.

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Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER.

Black Diamond, in 1 lb canisters.
do do in 1/2 lb canisters.
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do do in 1/2 lb canisters.
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do do in 1/2 lb canisters.
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do do in 1/2 lb canisters.
do do in 1/4 lbs.
do do in 1/2 lbs.
do do in 1/4 lbs.
do do in 1/2 lbs.

Blasting and Mining Powder \$2.50 per keg.

Safety Fuse and Shot for sale by
HAYWARD & COLEMAN, Agent
2v15-3m 414 Front street, San Francisco

ESTABLISHED

[MAY, 1884.]

VOLUME SIXTEEN

—OF THE—

Mining and Scientific Press,

COMMENCING JANUARY, 1868.

DEWEY & CO., Publishers.

Issued every SATURDAY, at our Book and Job Printing Office, 505 Clay street, corner of Sansome, San Francisco. Terms in Advance.—One year, \$5; Six months, \$3; Single copies, 15 cents; Monthly Series, \$5.50 per year, or 65 cents per number. Back Volumes from January, 1864, \$3 per volume; bound, \$5 per volume.

The Mining and Scientific Press is now thoroughly established, and enjoys one of the largest and most permanent subscription lists of any weekly journal on this coast. The individual character and reputation of its constant patrons throughout the entire coast is one of the best recommendations of its merits and value as a medium of intelligent progress and prosperity.

DEWEY & CO., Proprietors, Mining and Scientific Press Patent Agency, Newspaper, Book and Job Printing Office, 505 Clay street, San Francisco.

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Department of Chemistry,

UNDER

PROF. W. B. RISING.

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The Course of Instruction will include a thorough drill in Qualitative Analysis, and advanced students will be furnished every convenience for Quantitative Analysis.

Attention will be given to the detection and separation of poisons.

Also, instruction in the Assay of Gold, Silver, Copper, Lead, Mercury, and other Ores.

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What they are;

How Assayed;

How Concentrated;

And How Worked;

With a Chapter on the

BLOW-PIPE ASSAY OF MINERALS.

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With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 2v15tf

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COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

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4v16-3m

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Transact European and Colonial business for Patent Agents on favorable terms. 23v15tf

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Assayer of Mineral Compounds. For simple assay, \$5; Qualitative for all, \$10; Correct total Quantitative, \$20. Advice, as to the best method, and instructions for working Refractory Ores. Send one-half ounce of unbroken rock.
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Drawings of Monuments made for parties applying for patents at Washington or London. mar23-tf.

JAMES M. TAYLOR,

Attorney and Counsellor at Law,

Court Block, 636 Clay Street,

SAN FRANCISCO.

2v15-1qy

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DALTON & BLUNT,

Produce and Commission Merchants,

Dealers in all kinds of Country Produce,

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Personal orders, small or large, and for articles of every description, promptly and carefully attended to.

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Solicitor of Patents and Consulting Chemist,

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Late of the U. S. Patent Office; formerly of the German Laboratories of Liebig and Lowig; Translator of the Chemicals of Lowig and Will.
Dr. Breed will promptly attend to any business, and give especial attention to chemical, rejected, and other difficult and important cases. ☞ Address Dr. DANIEL BREED, Washington, D. C. 22v15-5m*

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First-class gold fillings for \$3, as good as any dentist can produce in the city. Dr. Winter has practiced Dentistry twenty years—fifteen in this State. For a full upper set of gum teeth, on vulcanite base, from \$20 to \$35. Teeth extracted without pain by local application. 18v14-tf

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MANUFACTURERS OF

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The capacity of this establishment is now the largest on the Pacific Coast. It is now in full operation, and prepared to supply the demand of the trade.

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Machinist, Maker of Models for Inventors,
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LEAVE WHARF, CORNER OF FIRST AND

BRANNAN streets, at 11 o'clock A. M. of the

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ASPINWALL for NEW YORK.

On the 10th, 18th and 30th of each month that has

31 days.

On the 10th, 19th and 30th of each month that has

31 days.

When the 10th, 19th and 30th fall on Sunday, they will

leave on Saturday preceding, when the 18th falls on Sun-

day, they will leave on Monday following.

Steamer leaving San Francisco on the 10th touches at

Manzanillo. All touch at Acapulco.

Departures of 10th or 19th connect with French Trans-

Atlantic Co.'s steamer for St. Nazaire, and English steamer

for South America.

Departure of 10th is expected to connect with English

steamers for Southampton and South America, and Australia,

and P. R. R. Co's steamer for Central America.

Through tickets can be obtained.

The following Steamships will be dispatched on dates as

given below:

March 10th—CONSTITUTION.....Capt. J. M. Cavarly

Connecting with HENRY CHANCEY, Capt. Gray.

March 18th—GOLDEN AGE.....Capt. E. S. Farnsworth,

Connecting with the KISINO STAR, Capt. Conner.

March 30th—GOLDEN CITY.....Capt. W. F. Lapidge,

Connecting with ARIZONA, Capt. Maury.

Cabin passengers berthed through. Baggage checked

through—100 pounds allowed each adult.

An experienced Surgeon on board. Medicine and attendance

free.

These steamers will positively sail at 11 o'clock. Passen-

gers are requested to have their baggage on board before 10

o'clock.

Through Tickets for Liverpool by the Cunard, Inman and

National Steamship Lines, can be obtained at the office of

the P. M. S. & Co., San Francisco, where may also be ob-

tained orders for passage from Liverpool or Southampton

to San Francisco, either via New York or St. Thomas—if

desired an amount of \$10 to \$20 will be advanced with the

above orders. Holders of orders will be required to iden-

tify themselves to the Agents in England.

For Merchandise and Freight for New York and way

ports, apply to Messrs. WELLS, FARGO & CO.

The Steamship GREAT REPUBLIC, Capt. S. Doane, will

be dispatched March 6th, at noon, from wharf, corner of

First and Brannan streets, for YOKOHAMA and HONG-

KONG, connecting at Yokohama with the steamer OOSTA

RICA for SHANGHAI.

For passage and all other information, apply at the Pa-

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Leidsdorff streets.

OLIVER ELDRIDGE, Agent.

Pacific Chemical Works.

Aqua Ammonia,

Acetic Acid,

Acids Chemically Pure,

Nitrate of Silver,

Cyanide of Potassium,

AND CHEMICALS OF ALL KINDS,

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DEWEY & CO.,

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Pioneer Mining School,

ASSAY OFFICE

—AND—

Metallurgical Works,

SAN FRANCISCO.

Having established the first Practical Mining and Metallurgical School in the United States, I would call the attention of gentlemen who may wish to obtain a practical knowledge of Chemistry, Metallurgy, etc., to the fact that I am now prepared to teach the following branches:

1.—Assaying of Ores, Metals, and other Mineral Substances.

2.—Metallurgy of Gold, Silver, Copper, Lead, etc., by Smelting, Amalgamating, Lixiviation, etc.

3.—Gold Extraction, by Chlorine Gas; also, a modified process of the same, which is cheaper and quicker than the processes usually employed.

4.—Concentration.—Dressing of Ores.

5.—Construction of Furnaces, in which any kind of fuel may be used for Smelting, Roasting, etc., as well as the erection of any Machinery or Apparatus required in Metallurgy and Technology.

6.—Technology, or Chemistry as applied to any special branch of Manufacturing.

By my Practical Mode of Teaching, any person of ordinary ability can learn to assay Ores in three lessons, and the working of all the ordinary and refractory ores in a few weeks.

Gentlemen of almost every profession, who, within the last two years have graduated at my establishment, will bear testimony that from my instructions they have learned more in a few weeks than they ever expected to learn.

My charges are from \$50 to \$200.

Ores of every description assayed and worked

JOSEPH MOSHEIMER,

Pr. Chemist, Metallurgist, C. E., etc.

Office, 323 Montgomery street. Works, 2,005 Powell street. 3v15-3moev

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Chlorination Process!

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Usual Restrictions on Occupation and Travel

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Managers Pacific Branch, 302 Montgomery st.
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THE BEST IN AMERICA.

The Mining and Scientific Press,

Is the Largest and Best MINING AND MECHANICAL Newspaper issued in the United States.

DEWEY & CO.,
Patent Agents, Publishers, Book and Job Printers, 505 Clay Street, San Francisco.

THE MINING AND SCIENTIFIC PRESS is published every Saturday. Each issue comprises sixteen pages (4 columns), and furnishes more valuable reading matter than any other weekly journal in California.

To the practical mechanic, metallurgist, prospector, millman, mine builder or worker, it is worth many times its subscription price. Its files contain a record of the improvements in mining machinery, the progress and development of the mines, and all new methods and processes for working and

SAVING PRECIOUS METALS.

All progressive information, in fact, transpiring with the times—which cannot be obtained from books.

The Mining and Scientific Press is now in its FIFTEENTH VOLUME, and enjoys a large circulation. It received the following hearty endorsement of the California Miners' State Convention, held at Sacramento, January 17th, 1886:

Resolved, That we regard a mining paper or journal of great importance to the mining interests of California, and recommend the MINING AND SCIENTIFIC PRESS, of San Francisco, to the consideration and support of the miners of the Pacific coast.

Terms of Subscription.—One year, \$5; six months, \$3—in advance. Send for sample copies. Remittances may be made by mail at our risk. If parties sending will register their letters, or send money order.

AS AN ADVERTISING MEDIUM throughout the whole Pacific States and Territories, the Press is unsurpassed. Rates moderate.

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"Best Best" Iron.

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Square,
Flat,
Assorted Sizes.

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9v161f

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CIRCULARS FREE.
SAN FRANCISCO.

MECHANICS'

Mill and Manufacturing Co.

Cor. Mission and Fremont streets,

SAN FRANCISCO.

Formerly James Brokaw, Proprietor.

This establishment is now under the control of a Joint Stock Company, composed of the old employees, is supplied with all the

Modern Improvements in Machinery,

And has the best facilities in the State for furnishing Buildings with every description of WOODWORK FINISH.
All orders promptly and carefully attended to.
5v163m **ASA H. WELLS, Manager.**

Partner Wanted.

IN A SAWMILL, ABOUT GOING INTO OPERATION. The proprietor has a contract upon which there is a clear profit of ten thousand dollars within the next twelve months. Amount of money desirable, \$3,000. Address, P. M. S., care of Mining and Scientific Press; or inquire at the office of same, 505 Clay street. 5v162f

DRS. GRISWOLD & ALBERTSON,

Homoeopathic Surgeons and Accoucheurs,

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W. H. GRISWOLD, M. D.

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TRUESDELL, DEWEY & CO. BOOK AND JOB PRINTERS,

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BILL-HEADS,
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AND

PRINTING OF ALL KINDS FOR BUSINESS MEN

BRIEFS,
TRANSCRIPTS, and
LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

New Mining Advertisements.

North American Wood Preserving Company.
Location of Works: San Francisco, California.

Notice is hereby given, that at a meeting of the Board of Directors of said Company, held on the twenty-ninth day of February, 1883, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 32 New Merchants' Exchange, California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

WM. B. LAKE, Secretary. mar7
Office, 32 Merchants' Exchange.

San Marcial Silver Mining Company.—Location of Works: San Marcial, District of Hermosillo, State of Sonora, Mexico.

Notice is hereby given, that the Annual Meeting of the shareholders of the above named Company, will be held on TUESDAY, the seventeenth day of March, 1883, at 10 o'clock P. M., at the office of the Company, No. 426 Montgomery street, San Francisco, for the election of Trustees to serve for the ensuing year, and for the transaction of other business.

R. N. VAN BRUNT, Secretary. mar7
Office, 426 Montgomery street, San Francisco.

Mining Notices—Continued.

Mining Stock for Sale.

Eight shares reserved stock of the SILVER SPROUT MINING CO. will be sold at cost price, if applied for immediately at the office of the Company, 408 California street.

NATHANIEL PAGE, President.

Chilpancocha Mining Company.—District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-third day of January, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	No. Shares.	Amount.
Bazzolini, D.	11	30	\$150 00
Buzzolini, D.	74	4	20 00
Cheresh, E.	22	5	25 00
Demore, F.	18	18	90 00
Descalro, A.	25	5	25 00
Ghirardelli, D.	23	22	110 00
Ghirardelli, D.	72	2	10 00
Ghirardelli, D.	75	20	100 00
Lohse, J. F.	90	15	75 00
Larco, N.	27	12	60 00
Larco, N.	89	75	375 00
Mosheimer, Jos.	56	25	125 00
Mosheimer, Jos.	57	25	125 00
Spahn, G.	27	9	45 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of January, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, No. 310 Montgomery street, on Monday, the sixteenth day of March, 1883, at the hour of 12 o'clock M. of said day to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN F. LOHSE, Secretary. feb29
Office, 318 California street, up stairs, San Francisco.

Chalk Mountain Blue Gravel Company.—Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-sixth day of February, 1883, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twentieth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary. feb29
Office, No. 5 Government House, corner Washington and Sansone streets, San Francisco, California.

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

Fogus Mill and Mining Company.—Location of Works: Amador County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1883, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable on the twentieth day of February, 1883, in United States gold coin, to the Secretary, at his office.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the ninth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN J. SCOTCHILLER, Secretary. feb22
Office, No. 321 Front street, San Francisco.

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1883, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary. feb22
Office, No. 302 Montgomery street.

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of February, 1883, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary. feb22
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco.

Kearnsage Mining Company, Kearnsage District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1883, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 408 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINOARD, Secretary. jan25
Office, 408 California street, San Francisco.

POSTPONEMENT.—The day for deemed stock delinquent on the above assessment is hereby postponed until Tuesday, the twenty-fourth (24th) day of March, 1883, and the sale thereof until Thursday, the sixteenth day of April, 1883. By order of the Board of Trustees.

T. B. WINOARD, Secretary.

Lyon Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of February, 1883, an assessment of two dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the thirteenth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary. feb29
Office, No. 5 Government House, corner Washington and Sansone streets, San Francisco.

La Blanca Gold and Silver Mining Company,

District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the second day of January, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	No. Shares.	Amount.
Alexander, C. B.	42	1	\$2 50
C. B. Richard & Sons	622	48	120 00
Benjamin Fishel	354	1	2 50
Benjamin Fishel	279	5	12 50
Louis Levy	201	12	30 00
John Levy	341	1	2 50
Louis Levy	395	4	10 00
Isaac Michael	375	5	12 50
H. Newman	434	1	2 50
R. Newman	433	10	25 00
Richard Pinkney	413	6	15 00
Richard Pinkney	316	2	5 00
Conrad Stolze	86	10	25 00
Conrad Stolze	87	10	25 00
Conrad Stolze	399	4	10 00
Henry Holm	385	5	12 50

And in accordance with law, and an order of the Board of Trustees, made on the second day of January, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the salesroom of Maurice Dore & Co., No. 327 Montgomery street, San Francisco, Cal., on Monday, the seventeenth day of February, 1883, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

WM. SIEVERS, Secretary pro tem. feb22
Office, Nos. 312 and 314 Front street, San Francisco.

POSTPONEMENT.—The above sale is hereby postponed until Monday, the twenty-third day of March, 1883, at the same hour and place. By order of the Board of Trustees.

WM. SIEVERS, Secretary pro tem.

OLNEY & Co., Auctioneers and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. nol10

Economy in Advertising.—The Mining and Scientific Press is the best and most economical mining advertising medium in this city. Our terms are less than one half the rates now charged by daily newspapers, and the mining community are beginning to appreciate our reasonable rates of advertising. The Press contains, proportionally a larger amount of mining advertising than any other paper on the Pacific coast. Its character renders it the proper journal for the concentration of mining patronage.

Mount Tenabo Silver Mining Company.—Location of Works: Cortez District, Lander County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the ninth day of January, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	No. Shares.	Amount.
Reil, Thomas	109	50	\$1250 00
Clausen, H. H.	47	12	30 00
Clausen, H. H.	91	8	20 00
Dunham, Charles	65	100	250 00
Guthrie, F.	124	39	97 50
Gordon, John	18	75	187 50
Guttenberg, W.	29	80	200 00
Heard, George	24	275	687 50
Heard, George	107	224	560 00
Herrmann, John F.	102	10	25 00
Lechmann, Chr.	24	12	30 00
Vandervoort, J. C.	28	50	125 00

And in accordance with law, and an order of the Board of Trustees, made on the ninth day of January, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Thursday, the twelfth day of March, 1883, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

R. N. VAN BRUNT, Secretary. feb22
Office 426 Montgomery street, San Francisco.

Oxford Belt Tunnel and Mining Company.—Esmeralda District and County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of February, 1883, an assessment (No. 25) of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, or to the Superintendent at the mine.

Any stock upon which said assessment shall remain unpaid on the eighteenth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

OEO. H. PECK, Secretary. feb16
Office, 212 Clay street, San Francisco.

Nuestra Señora de Guadalupe Silver Mining Company. Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that the Annual Meeting of the Stockholders of the above named Company, will be held on FRIDAY, the sixth day of March, 1883, at 8 o'clock P. M., precisely, to the back room of the basement of N. E. corner Kearny and Bush street. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary. feb29-11
Office, No. 210 Post street, San Francisco.

San Francisco and Castle Dome Mining Company. Location of Works: Castle Dome County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-sixth day of February, 1883, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Treasurer, A. I. Gladding, No. 320 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirty-first (31st) day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-first day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. R. SMITH, Secretary. feb29
Office, Room No. 16 Stevenson's Block, Cor. Montgomery and California streets, San Francisco.

Sacore Gold and Silver Mining Company.—Location of Works: Storey County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of February, 1883, an assessment of fifty cents (50c) per share was levied upon the capital stock of said Company, payable on the eleventh day of February, 1883, to the Secretary, at the office of the Company, Nos. 77 and 78 Montgomery Block, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the sixteenth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the fourth day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. MOORE, Secretary. feb16
Office, Nos. 77 and 78 Montgomery Block, San Francisco, California.

Ventura Gold and Silver Mining Company.—Location of Works: Durango, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of January, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Name.	No. Certificate.	No. Shares.	Amount.
C. B. Holm	236	224	\$560 00
M. W. Taggard	312	165	412 50
E. A. Thompson	301	5	12 50
E. Whitling	133	10	25 00
E. Whitling	134	10	25 00
J. L. Whitall	not issued	20	50 00
M. E. Hall	184	2	5 00
M. E. Hall	187	2	5 00
M. E. Hall	304	5	12 50
Miss B. Darrity	196	18	45 00
Mrs D. A. Powers	205	2	5 00
Mrs D. A. Powers	198	2	5 00

And in accordance with law, and an order of the Board of Trustees, made on the eighth day of January, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, S. W. corner Folson and Stewart street, on the twenty-fourth day of March, 1883, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. W. SCOTT, Secretary. feb29
Office, southwest corner of Stewart and Folson Streets, San Francisco.

Wetch Quicksilver, Silver and Copper Mining Company. Mount Diablo Mining District, Contra Costa County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of January, 1883, an assessment of three dollars (\$3) per share was levied upon the capital stock of said Company, payable on the tenth day of March, 1883, to the Secretary, George Hyles, at his office, Room No. 15 Stevenson House, southwest corner of Montgomery and California streets, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventeenth day of March, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular row between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
1st San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works,
San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

-BY-

WM. P. BLAKE,

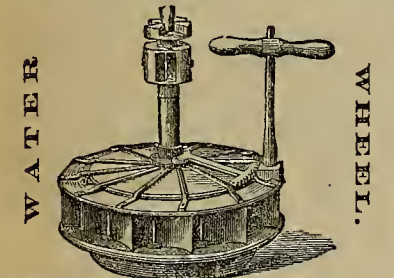
Corner First and Mission streets, or Box 2,077
3v13f SAN FRANCISCO.

DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND Placer Miners, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of the mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address
Du. J. B. BEERS, San Francisco,
Per Wells, Fargo & Co's Express.

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALED AND UNRIVALED in the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REFERENCES.—E. Steaton, Folsom; O. Simmons, Oakland; Mill at Clear Lake; Morgan Coyville, Lexington; Santa Clara County; J. Y. McMillan, Lexington; Santa Clara County. **Send for Circular.**

KNAPP & GRANT,
Agents for California.

310 Washington street, San Francisco

NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz. Greater strength; less danger in working, as goods require no slinging or landing; consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

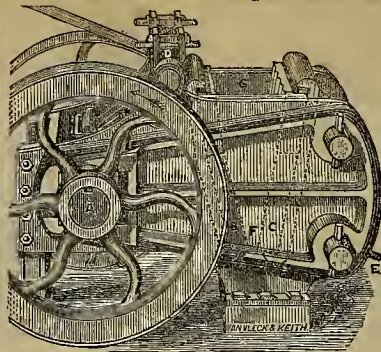
VULCAN IRON WORKS CO.,
By Joseph Moore, President.
JOSEPH MOORE.

HUNGERFORD'S
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Coss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.
25v15f **MORGAN HUNGERFORD.**

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600
No. 2.—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour.....850
No. 3.—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Expositor Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866.
JAMES BRODIE, Esq., San Francisco.—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
R. P. JOHNSON,
Sept. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED CERVAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

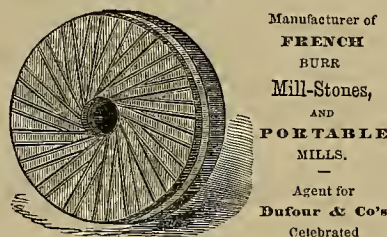
For the present it is not intended to grant licenses for the use of the Improved Cervan Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, FOUNDRY AND MACHINE WORKS, OR CHARLES RADCLIFFE,
Express Building, 402 Montgomery street, San Francisco.

C. F. TRAVIS.



Manufacturer of
**FRENCH
BURR
Mill-Stones,
AND
PORTABLE
MILLS.**
—
Agent for
Dufour & Co's
Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt; Mill-Stones Balanced with Hollenbach's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory.
C. F. TRAVIS,
109 Mission street, San Francisco.

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 438 Brannan street, between Third and Fourth. Refers to Elsen Bros., Pioneer Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

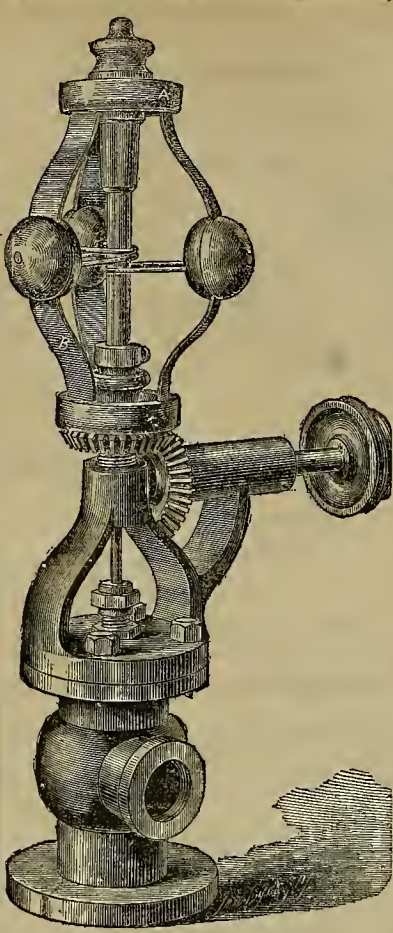
PATTINSON'S
HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among miners as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.
7v15-4v **THOMAS PATTINSON**

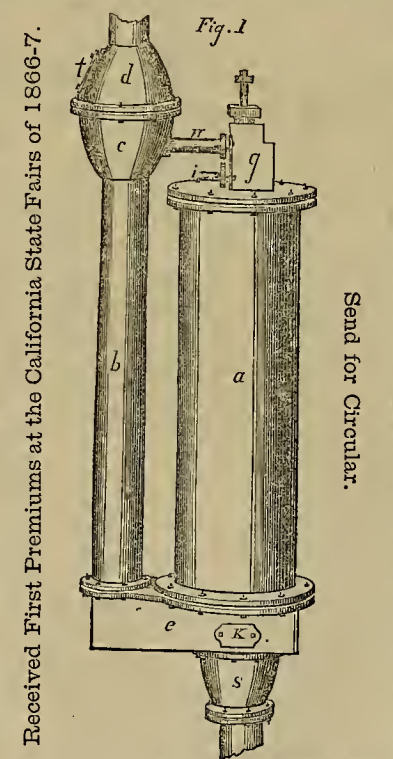
To Quartz Miners.

Two Quartz Mills for Sale at very Low Rates.
PARTIES WISHING TO PURCHASE WILL SAVE 50 percent by calling at HOWLAND'S SAMPLE MILLS, No. 24 California street, San Francisco. 2v15-3m

PICKERING'S
ENGINE REGULATOR.

Warranted the Best in Existence.

Cheap and easy to attach to any Engine, old or new.
Send for a Circular, to DAVID STODDART, 114 Beale street, San Francisco. 12v16-2am1q

WILCOX'S
Patent Steam Water Lifter.

Received First Premiums at the California State Fairs of 1866-7.

Send for Circular.

A Steam Pump without Engine, Piston, Plunger or Buckets, using both the expansive and exhaust power of steam, and doing more work with the same amount of fuel, than any other Pump driven by steam power. It is applicable to either lighter or heavy work, whether for mining, irrigation, or other purposes. It has been used of various capacities, from 500 to 30,000 gallons per hour, and can be made of any size required. It is not injured by sandy or muddy water. In light of lift it is limited only by the strength of the boiler used.
For further information, apply to M. & A. WILCOX, Proprietors, No. 19 Front Street, between 1 and J Sts., Sacramento, Cal. 25v16 2am3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,

Etc., Shear, Spring, German, Plow, Bilster and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks,
Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,
319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco.
10v14q

A NIGHT VIEW OF VESUVIUS.—Bayard Taylor writes thus to the New York Tribune of the eruption, as witnessed by him on New Year's Day, from his window in Naples:

The top of the cone resembled a shallow basin with chipped and cracked edges, and the opening of the crater lay behind it, apparently at some depth. Out of it and around it poured a steady glow, from the stream of lava running over the further side and descending toward the Atrio del Cavallo. But at intervals of not more than half a minute, there were thrown up columnar jets of intensest flame to a height varying from 100 to 200 feet. Volumes of smoke, dull vermilion at first, but soon fading to a dark ash-color, rolled off the leeward side of those fiery pillars, as they rose and whirled away, broadening into the darkness. What seemed to be pure, solid fire, as it issued from the crater, changed into a thousand scarlet sparks, which turned outward on all sides in a sheaf-like form, and showered down again into and beyond the crater. I could roughly estimate the light of the jet by the time which the stones occupied in falling. Some of them were evidently of enormous size.

For hour after hour I watched the explosions, which seemed to threaten an impending catastrophe, yet were as regular and unchanged in their action as wave-beats on the seashore. Indeed, there appeared to be a "ninth wave"—a recurrence, after a number of moderate jets, of one grand, fierce outbreak of oppressed force, hurling its dazzling sparkles against the red cloud which hung directly over the crater. These displays were inexpressibly grand. I have called the color scarlet, but this only expresses its general character. The cone of the shaft was of ruddy gold, and its summit dissolved into fleeting rose-blooms. The darkness of the night—the outline being barely visible against a mass of clouds—intensified the effect.

ANOTHER.—The following letter from Austin, Reese River, to the Territorial Enterprise, shows up another instance of folly: The Rev. Albert Worthington, who deeded a property worth \$10,000 to a plausible fellow bearing the name of Gen. Thomas D. Johns, as a consideration for an interest in certain mining claims in this vicinity has certainly been badly swindled. The locations he bought into are on record and the "holes in the ground" are visible, no one as yet having thought it worth while to relocate them. The Seymour is in the base metal portion of Lander Hill; is opened by an incline to the depth of eighty feet; shows a vein from six to fifteen inches thick, with ore that will yield \$10 to \$50 per ton. It may be the Savage lode, but as it is on another hill and some 1,500 feet off, it would require a mining soothsayer to settle the question. No work has been done on the claim for nearly four years. The Silliman is on Union Hill, above the Whitlatch mine, and has yielded some very fine ore. It is a small vein—three to eight inches wide—and has been pretty well gouged near the surface by chloride ore hunters. It is undeveloped, however, and will require to be opened to the depth probably of 300 feet before anything reliable concerning it can be known—it may possibly one day or other be a good mine. The Great Republic and Camillus are towards the divide on Union Hill between the Manhattan mill and the Whitlatch Union mine. They truly belong to the "wild-cat" family, but some day with extraordinary management might become domesticated. Taking the four ledges collectively, they would possibly realize about five cents a foot, provided a purchaser having \$120—the aggregate price—at command were present at the sale. It will take an outlay of \$20,000 to tell if they are worth anything. I have a word to say to the Rev. Mr. Worthington. If he would not buy an old horse of the value of \$30 without an examination, why should he buy mines without equal precaution—and that too from an entire stranger.

ARTIFICIAL STONE.—In St. Louis there is an establishment for making mantels, etc., from silicate of soda and sand. Flint (silicic acid) and soda are melted together in such proportion as to make a viscid substance. This, mixed with the sand, is ground in a mill and becomes plaster-like putty. It is then pressed into molds by hand. In a few hours it becomes perfectly hard, and is as perfect as the carver's work of months.

VELOCITY OF MUSKET BALLS.—It is ascertained by experiments recently made with targets connected together by electric wires, that the ordinary rifle ball of the Springfield musket, with the regulation quantity of powder, passes over 100 feet directly from the muzzle of the piece in about the fifteenth part of a second.

AN OLD FOOL.—John Bennehoff, a small farmer near Oil Creek, Pennsylvania, whose land happened to be in the oil region, has for three years past been in receipt of a monthly income from oil of from \$30,000 to \$60,000. Being intensely avaricious, and having no faith in banks, he has kept his money in iron safes in his own house, with an armed guard constantly over it. The house was half a mile from any other, with a strip of woods between. About a month ago, a party of men entered at night fall, overpowered the old man and his guard, tied and gagged them, seized the safe keys, opened the safes, and carried off about \$350,000 in greenbacks. Even this lesson has done the old man no good. He still has a large amount of money hidden in his house, and still parades his guard.

IMMENSE FACTORY FOR ARMS.—The new Colt Armory at Hartford is 500 feet long by 60 wide, and is surmounted by a roof frame of wrought iron and a magnificent dome. It is four stories high, has 550 windows, and 37 miles of heating, gas and water pipes. The motive power is furnished by four vertical steam engines.

MODERN TRAVELING SPEED.—The traveler who leaves Edinburgh at 7 p. m. on Monday, arrives at Paris at 6 p. m. on Tuesday, having traveled 679 miles in 23 hours, including a sea trip of 22 miles.

The Photographic Landscape Rock.

The Eighth Wonder of the World!—A Puzzle for Geologists!

On Exhibition at the
S. E. Corner Montgomery and California Sts.

THE EL DORADO PHOTOGRAPHIC LANDSCAPE CO. have on exhibition, at the southeast corner of Montgomery and California streets, a number of LARGE SLABS of the PHOTOGRAPHIC LANDSCAPE ROCK, from the famous quarry at Pleasant Valley, El Dorado County. Some of these slabs are five feet long and three feet wide, and they are PAINTED BY NATURE, IN COLORS, with Landscape Views, which run through the rock, being the same on both sides of the slab, no matter how thick or how thin. These Landscape look as if they were photographs of the adjacent mountain scenery, representing mountain ranges, hills, forests, high rocky points, lakes, caves, sea beaches, and plains. There are also pieces which look like the natural wood.

Geologists acknowledge that nothing has been found elsewhere of the same kind, and they are unable to explain its formation. ADMISSION, 25 CENTS. Open Day and Evening. 8v16-1m

Legitimate Photography OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photography, and a special premium for the best Cabinet Portraits, to SILAS SELLECK, 415 Montgomery street. Prices reduced to conform to Association rules. Patent secured. 25v16-6m

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT, Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice. 7v16-6m

H. T. HOLMES.

Galena Wanted.

50 TONS OF PURE GALENA, DELIVERED IN SAN Francisco. Address, WM. AYRES, 8v16-1f San Francisco Post Office.

Notice to Miners, Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE M. Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mechanical Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done. 8v13-1y Stove Store, No. 125 Clay street, below Davis.

BLAKE'S PATENT QUARTZ CRUSHER.

CAUTION!
The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, proceed, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Up-right Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages. BLAKE & TYLER, 14v14-1f Agents for the Pacific Coast.

**PACIFIC
FILE, REAPER AND MOWER SECTION
Manufactory,**
No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.

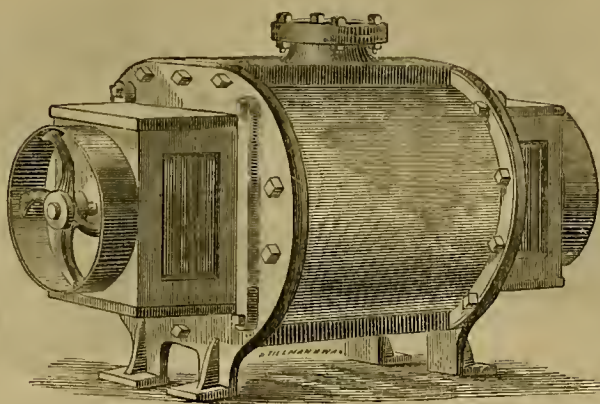
25v16-3m First premium awarded at the State Fair, 1867.

DURNING & KENNEY, Proprietors.

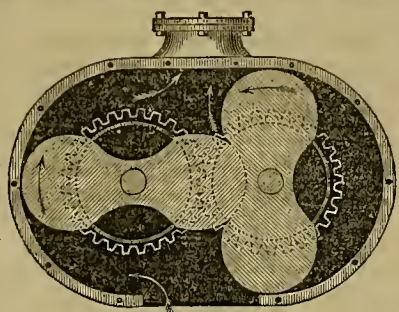
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1864; July 23, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

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Globe Iron Works, Stockton, Cal.

WE ARE NOW OFFERING OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of
ALL THE LATEST STYLES

BOTH OF MATERIAL AND FINISH.

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Trunks, Valises, Carpet Bags, Blankets, Etc.,

AT EXTREMELY LOW PRICES.

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Illuminating, Lubricating, PAINT OILS!

CONSISTING OF

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—ALSO—

SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of MILL owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.

A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

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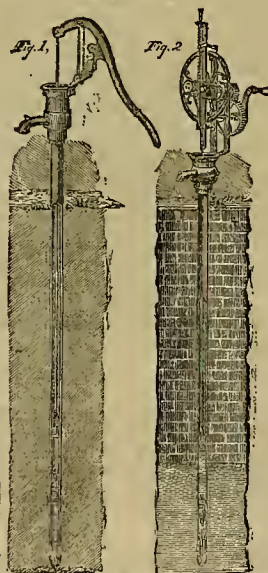
A large and complete assortment on hand. 8v13-3m 414 Front street, San Francisco.

Steam Pumps, FOR DRAINING MINES OR ELEVATING WATER TO ANY HEIGHT. PICKERING'S GOVERNORS

For Steam Engines.
Giffard's Injectors,
For Feeding Boilers.

STODDART'S IRON WORKS,
Beale Street, San Francisco.
25v12-3m

Avery's Great National Pump and Well.



This Well is formed by driving metallic tubes into the ground until water is reached. The valves are then dropped down the pipe, then the pipe is raised six inches to allow free increase of water. The Pump is now ready to work. For the first thirty minutes we draw up earth, etc., till a vacuum is formed, which makes the Well.

This Pump has proved itself to be the greatest invention of the age. It will raise water 500 feet. State, County and Town Rights for sale. Pumps furnished at moderate prices, by S. P. ROBERTS.

Agent for California and Nevada.
One of these Pumps may be seen in operation at No. 318 Pine street, San Francisco. 8v16-3f

A FULL ASSORTMENT OF
MACHINE SCREWS AND TAPS,
Constantly on hand and for sale by
CHAS OTTO & CO.,
22v15-3m 312 Bush street.

A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 22v16-3m

The American Spring Bed.

THIS BED, NOW SO POPULAR IN THE EASTERN and Western States, was patented August 1858. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines clearance with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 23 Post street, San Francisco. 8v16-3m

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MAYNARD & TIEMANN
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210 Pearl street, New York,
—AND—
CENTRAL CITY, COLORADO.
18v12-1y

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ASSAYER AND WORKER OF ORES
SAN FRANCISCO FOUNDRY.
Fremont street, near Mission, San Francisco
Highest price paid for choice lots of Ores, Sulphurets, AS-
SAY Ashes, Scoriae, etc. Students instructed in all
branches of Metallurgy, on liberal terms.
13v16-1f

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A COURSE OF INSTRUCTION

CHEMICAL ANALYSIS,

THE ASSAY OF ORES,
And the Use of the Blow-pipe,

OR ANY PART OF SUCH COURSE,

May apply at this Office.

25v Pupils will have the advantage of a Complete Labora-
tory. 18v15

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OF THE NEWARK, N. J.,
Metallurgical Works.**

BALBACH & BROTHER,
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Assays of Gold, Silver, Copper and Lead Ores.

Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, if desired, by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.

Consignments of Gold and Silver Ores solicited.

Refining of Bullion at usual rates.
25v Agents for Ed. Balbach's Improved Process for Sepa-
rating Silver and Gold from Lead. 25v15-3m

JOHN TAYLOR & CO.
IMPORTERS,
AND DEALERS IN

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gium) their superior

ASSAY AND BULLION BALANCES,
And from France and Germany, as well as the Eastern States, FURNACES, GRUCIBLES, MUFFLES, BLOW-PIPE CASES, GOLD SCALES, CHEMICAL GLASSWARE, and every article required for ASSAY OFFICES, LABORATO-
RIES, etc. We have given this branch of our business par-
ticular attention, to select such articles as are necessary in the development of the mineral wealth of this coast.

A Full Assortment of DRUGGISTS' GLASSWARE and DRUGGISTS' SUNDRIES, ACIDS and CHEMICALS, con-
stantly on hand.
San Francisco March 6, 1865. 11v10-1f

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Metallurgical and Chemical Works,**
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Assays of Gold, Silver, Copper and Lead Ores.

SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF
Ores, Minerals, Clays, Waters, and General Commercial
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Tests of Gold, Silver, Copper and Lead Ores, by Smelting,
in quantities of fifty pounds to five, ten or fifty tons.

Consignments of Ores solicited.

Refining of Bullion at usual rates.

Founders and Metal Workers furnished with alloys of every description.

Parties requiring plans and specifications for the erection of Smelting Works, can be supplied, and the actual process while working shown.

Plans and specifications furnished for works, and pro-
cesses for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical Products.

Superintendent, Mr. WILLIAM WEST, formerly of Swan-
sea, Wales.
For engagements and terms, apply at the office of
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18v15-6m

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THE PHILOSOPHY OF MARRIAGE, BEING FOUR IN-
portant Lectures on FUNCTIONS and DISORDERS of
the Nervous System and Reproductive Organs, to be read by
addressing and including twenty-five cents, postage stamps,
to Secretary PAGGIO MUSEUM OF ANATOMY, Mont-
gomery street, San Francisco. 25v13-1y

Manzanita Pipes!

WHOLESALE AND RETAIL.—SALESROOM, NO. 55
Third street, near Mission. Factory, No. 10 Stevenson
street, near First, San Francisco. These Pipes are manu-
factured from the best Mountain Manzanita, as sweet as
Merschaum.
24v15-3m JACKSON & SPAULDINO.

The attention of those afflicted with any disease of the eyes, is directed to the advertisement in this paper of Dr. D. R. Morgan, oculist. Dr. Morgan has just received a patent through the Agency of the MINING AND SCIENTIFIC PRESS, for a lotion or wash for sore or inflamed eyes, and from the character of the recommendations which he furnishes to the public, we would judge that he is having more than usual success in his treatment of diseased eyes. The Doctor is a thorough gentleman, and has practiced his profession for fourteen years on this coast, and is therefore fully acquainted with the eye diseases incident to our climate.

CONTINENTAL Life Insurance Company
302 Montgomery street, corner of Pine.

MARKET STREET HOMEOWNERS ASSOCIATION.—J. S. LUTY, Secretary. Office, 505 Montgomery street, corner of Pine, San Francisco. 2v15

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. DRS. BEEBES & JESSUP, corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 16v14-1f

Miners, Visitors to mining districts, R. R. EMPLOYEES, and TRAVELERS generally, should insure against all Accidents in the Traveler's Life and Accident Insurance Company of Hartford before leaving the city.

WM. McDONALD & CO., Gen'l Agents,
7v16-q3p 121 Montgomery St., opp. Occidental Hotel.

Accidents.

The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required.

WM. McDONALD & CO., Gen'l Agents,
121 Montgomery st., San Francisco,
Opposite Occidental Hotel.
2v16-3m

ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trades supplied twenty percent less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 26v15-3m

MEDICAL AUTHORITIES have announced that not less than ONE-FIFTH of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Mas' sachusetts. His "Universal Neuralgia Pill" is pronounced on all hands, to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. O. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced in the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the Mountain Messenger, of February, 1863. 10v16-3m

CHICKERING & SONS'



PIANOS
Received the
FIRST PREMIUM
(Gold Medal)

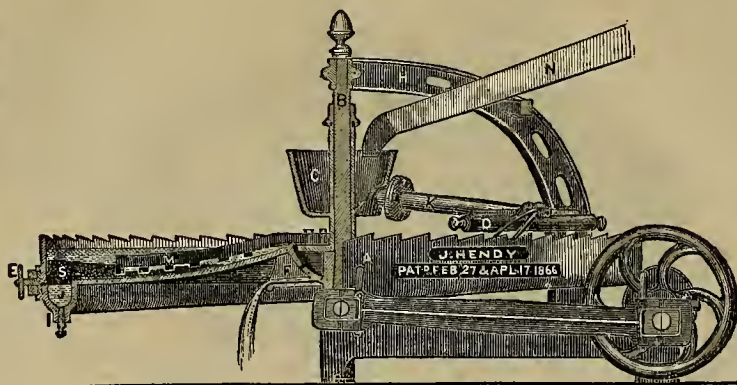
And Decoration of Legion of Honor, at the Paris Exposition.

KOHLER, CHASE & CO., Agents,
Corner Clay and Sansome streets, San Francisco.
20v14n16p

\$100 A MONTH SALARY WILL BE PAID FOR Agents, male or female, in a new, pleasant, permanent business. Full particulars FREE by return mail, of sample retelling at \$1.50 for 500 cents. A. D. BOWMAN & CO., No. 4 Broad street, New York.
(Clip out and return this notice.) 10v16-3m

A. R. WALKER, DENTIST,
Office and Residence, 254 Fourth street, San Francisco.
10v16 3m

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators or pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets.
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (7 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (6 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO., Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M. & M. CO. (3 Concentrators) Hunter's Valley, Mariposa County.	
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco.

Yours, very truly,
LOUIS JANIN, Jr.
The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,
Union Foundry, San Francisco.

W. T. GARRATT,
City
BRASS AND BELL FOUNDER.



Cor. Mission and Fremont sts.,
SAN FRANCISCO.

Manufacturer of Brass, Zinc, and Anti-Friction or
Babbet Metal Castings:
CHURCH AND STEAMBOAT

BELLS,

TAVERN AND HAND BELLS AND GONGS,

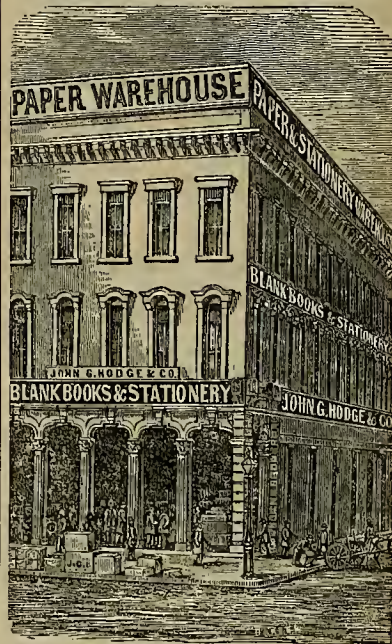
FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Liquor, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other joints, Solder, Solder, and Copper Rivets, &c. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles, &c.

HYDRAULIC PIPES AND NOZZELS

For Mining purposes, Iron Steam Pipe furnished with Fittings, &c. Coupling joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

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New York Ledger.....		Washington streets,
Blackwood.....	\$ 00	
Hours at Home.....		SUPPLIES ALL
Good Words.....		EASTERN
Peterson's.....	5 00	PERIODICALS
Arthur.....		By the Year, Month or Number.
Lady's Friend.....		
Harper's Weekly.....	6 00	
Chimney Corner.....		
Literary Album.....	6 00	
London Society.....		
All the Year Round.....	16 00	
London Ill. News.....		

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ESTABLISHED.....MAY, 1860

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PATENT AGENCY.**



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A Journal of Useful Arts, Science, and Mining and Mechanical Progress.

DEWEES & CO., PUBLISHERS,
And Patent Solicitors.

SAN FRANCISCO, SATURDAY, MARCH 14, 1868.

VOLUME XVI.
Number 11.

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MECHANICAL MISCELLANY.—
Expansion of Steam; Compressed Air Power Distributed like Gas; Improvement in Iron Manufacture; Improved Blast Furnace; Single and Compound Engines; Tests for Steel; To Coat Iron with Copper.
SCIENTIFIC MISCELLANY.—
Magnetic Phantoms; Indium; Preservation of Stone; Interesting Relic; Chemistry of Paints; Heat of Fusion; Sorbonne; Prussian Mechanics.
MINING SUMMARY.—Comprising late intelligence from the various counties and districts in California, Arizona, Colorado, Dakota, Idaho, Montana, Nevada, Oregon, Washington, and Wyoming.
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San Francisco Weekly Stock Circular.
Stock Prices—Bid and Asked.
San Francisco Market Rates.
San Francisco Metal Market.

The State University Bill.

We have received and read a copy of the Bill introduced in the Assembly, by Mr. Dwinslle, for the establishment of a State University, to be known as the "University of California," and to be located at Oakland. The bill has evidently been drawn with great care, and appears to embody all which the past experience of other similar institutions can suggest. It provides for a College of Agriculture, a College of Mechanic Arts, a College of Mines, a College of Civil Engineering, and such other Colleges of Arts as the Board of Regents may determine. In short, the University has for its design, to provide instruction and thorough and complete education in all the departments of science, literature and art, industrial and professional pursuits, and general education.

The College is to be founded upon the magnificent donation proposed to be made to the State by the present College of California, which will disincorporate as soon as the State University is established, and turn over thereto all its property and good will. Provision is also made by which other colleges now or hereafter established, may be affiliated with the University, so that students can be received from them, and upon examination, degrees conferred for proficiency in either general or special branches of learning. But colleges so affiliated may retain their own property, while the President of the University is to be a member *ex-officio* of the faculties of all such affiliated colleges. In this way any college can have a relation to the University, while it is left to manage its own affairs, so far as its separate existence is concerned. The University is to open its doors as wide as possible to every youth who wants more education than the Common School can afford. The bill is entirely free from provincialism, or sectarianism. It is cosmopolitan, and liberal in all its provisions. The government of the University is to be conducted by a Board of Regents, which is to consist of 22 members, and to include the Governor of the State, Lieutenant-Governor, Speaker of the Assembly, the State Superintendent of Public Instruction, the President of the State Agricultural Society, and the President of the Mechanics' Institute of this city.

Eight other members are to be nominated by the Governor, and eight additional honorary members are to be chosen by the appointed members.

If we were allowed to make a suggestion in this connection, it would be that the President of the Chamber of Commerce of this city, should also be made an *ex-officio* member of the Board; especially inasmuch as a mercantile education will undoubtedly be provided for on the broad educational foundation contemplated in this University. It is to the merchants of San Francisco that its founders must look, in a large degree, for material aid in carrying forward this truly great and liberal enterprise.

A liberal and practical education of all our industrious classes is what is desired for California. Our aim should be to as-

Behren's Patent Rotary Pump.

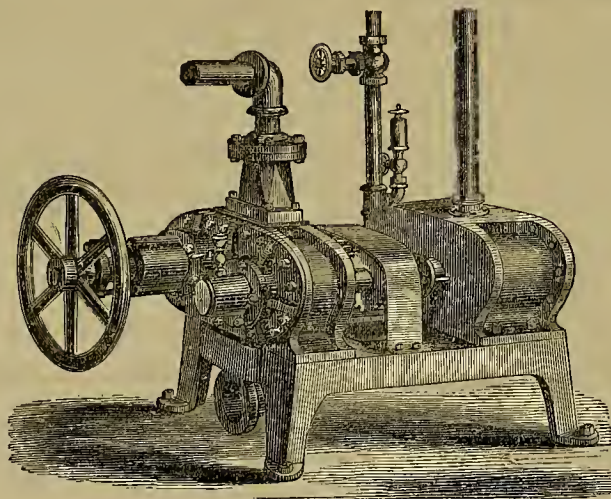
In our issue of Feb. 29th, we illustrated and described a new rotary engine recently patented by Henry J. Behrus, of New York city; and in that description mentioned that the engine, by having power applied to it externally, might be used as a pump. The illustration which we then promised to give, showing its adaptation for pumping, is now presented. It will be seen that the invention consists of an engine and pump, both attached to the same bed-plate, both constructed after the same pattern, and both operating upon the same principle; the cylinder seen upon the right being the engine, and that upon the left the pump. Steam is conducted to the pistons of the engine by the vertical pipe seen in the center of the engraving, and is admitted to the

ment of the cylinders of both pump and engine are precisely the same as the detailed cuts given in the description of the engine in our issue of the 29th ult., with the exception that as the induction of steam is at the bottom of the cylinder and the eduction from the top, the manner of the working of the engine is the opposite of the description there given.

It is not necessary that the engine represented should be used to drive the pump, as any ready motive power may be substituted in place of this engine, the propelling force being communicated to either one or the other of the pump piston-shafts, or a hand wheel may be substituted as a driving wheel, in place of the fly-wheel represented.

This pump is said to be economical for operation and certain and effectual in its results, and for use in breweries and sugar refineries is especially adapted. It will pump hot beer, thick mash, cold molasses or water with equal facility.

The patent upon this pump is the same as upon the engine, and was issued April 10th, 1866, and first illustrated and described in the *American Artisan* of March 13th, 1867.



BEHREN'S PATENT ROTARY PUMP.

cure for all who desire it an education, not merely in the strict line of their pursuits, but also in such branches as constitute the popular idea of a "liberal education." Let our industrial classes have the fullest possible opportunities to become acquainted with the natural sciences; enlighten their minds with a knowledge of history and literature, and society will thereby be greatly elevated and improved. A people thus educated will exhibit in the ordinary details of their business, a practical application of what they have learned, and cannot fail to place their State far in advance of any community where less attention is paid to properly fitting its young men for the struggle of life in this highly enlightened and eminently progressive age of the world. We earnestly hope that all our legislators will take the same enlightened view of this matter, which has been evinced by the author of the Bill under consideration.

THE TIDE LAND BILL.—The Railroad Tide Land Bill, which grants 1,780 acres of the most valuable portion of the southern frontage of the city to the Pacific Railroad companies, even if it should be restricted to the lands north of Hunter's Point, has been laid over by the Senate to Wednesday next.

pistons at an opening at the under side of the cylinder, exerts its force upon the pistons and is exhausted by the vertical pipe seen in the right of the cut extending from the top of the cylinder.

Upon the bed-plate opposite to the engine is placed the pump, and in its construction is precisely the same as the engine by which it is driven. Continuous from the shafts of the two pistons of the engine are the two shafts of the pump, and the same pair of gear wheels that are necessary for the continuous revolution of the engine are placed midway between the two cylinders, and are also the necessary auxiliaries to the continuous rotation of the pump. The mouth of the suction pipe, to which the necessary continuations of pipes are made to reach the liquid to be drawn, is seen underneath the cylinder of the pump, and the ejection pipe, through which the liquid is forced, extends from the top of the pump cylinder and may be conducted wherever the liquid is to be discharged. A light fly-wheel is placed upon one end of one of the piston-shafts for the purpose of assisting in the first start of the pump or engine, if such assistance is needed.

The internal construction and arrange-

TURNING A MOVABLE WHEEL AROUND A FIXED WHEEL.—The question,—"How many revolutions, upon its own axis, will a wheel make in rolling once around a fixed wheel of the same size?"—has been discussed in the *Scientific American*. That journal having answered "one," a correspondent sent to it a communication with a diagram, taking the ground that the answer should be "two." The *Scientific American* dissents, and still adheres to "one,"—furthermore insisting that the correspondent proves himself wrong by his own diagram.

Now to our mind, the aforesaid Philadelphia communication by "L. M." is conclusive, and the accompanying diagram rather neat than otherwise. Our readers may easily demonstrate for themselves that the *Scientific American* is wrong. Take a common bottle cork. From one end cut two slices one-eighth of an inch thick. These disks of cork will serve for the two wheels. With two pins, fasten one upon the table for the fixed wheel. A pin through the centre of the other will serve as its axis. Before putting in this pin, pass it through another bit of cork. Let this bit be a little above the disk, so that it shall not revolve with it. Make a dot, with ink, upon it, and opposite this dot, another upon the disk. Make a small cross upon each disk, at the point where they touch. Now taking firm hold of the pin which serves as the axis of this wheel which is to be moved, make the said wheel roll around the other—carefully, so that it may not slip. If you watch the two dots aforesaid, you will find that they meet twice, while the crosses meet once; that is to say, the moving wheel revolves twice upon its axis in making a single revolution around the fixed wheel. *Quod erat demonstrandum.*

Questions for the Scientific American and its Friends.—Does the moon revolve on its own axis? If it does—how often?

JEIGH ARRH.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

(Written for the Mining and Scientific Press.)

British Educational Mining Institutions.

BY PROF. ROWLANDSON, F. G. S. L.

NUMBER TWO.

With respect to the minor or provincial educational mining establishments existing in various parts of Britain, the first in order as being the oldest, is the School of Mines at Truro, the county seat of Cornwall. In fact, as early as 1838, Sir Charles Lemon then, and who I believe still continues to be one of the parliamentary representatives of this, his native county, established at his own cost, a mining school, owing to his being so anxious to exhibit the importance of such an establishment. This school was continued for about three years, on which Sir Charles offered to place at the disposal of the county the sum of \$50,000, if it would add a like sum for the purpose of founding a proper school of mines in Cornwall. From causes now unnecessary to name, the object was not then carried out. On, however, the opening of the Royal School of Mines, an impetus was again given to the subject in this important and well known mining county, and a local school of mines was soon after established at Truro, which still exists, and has been found of great use in creating a new and more intelligent class of mining officials.

It may not be out of place to give here an instance which we now have amongst us, showing the advantages obtainable from such institutions, even when conducted not under the most favorable auspices in a pecuniary point of view. Mr. J. S. Phillips, a most intelligent and experienced mining engineer and metallurgist, who has recently come to reside amongst us, has informed me that he obtained his normal instruction in the sciences associated with mining, at the school conducted under the pecuniary patronage of Sir Charles Lemon, previously noticed, which School was superintended by his brother, John Phillips; the chemical class being then taught by Mr. Robert Hunt, the present keeper of the Mining Records at the Royal School of Mines.

The next, I believe, in time, was the formation of the School of Mines at Sheffield, Yorkshire. This school is perhaps the most numerous attended by pupils of any similar institution in Britain. It is situated centrally amidst a most important coal and iron region, whilst the manufacturing of steel, metallic vessels, comprising those formed of copper, gold, silver, etc., etc., or of alloyed materials, as pewter, German silver, britannia metal, etc., plated and electro-plated ware, are also simultaneously carried on at Sheffield more extensively, probably, than at any other place in the world, Birmingham probably excepted, so far as a few articles are concerned. The body of teachers at this school is of a first class character, and here as a whole, especially when it is kept in remembrance what great local advantages exist for the pupils acquiring practical metallurgical and general technological knowledge at the numerous workshops of varied character which surround them; perhaps no school in the world affords to the impecunious but zealous mining and metallurgical student so many opportunities for improving himself at so small a cost. Here every favorable opportunity occurs for acquiring all branches of the studies associated with mining and metallurgy, and any student of ordinary mental acquirements, accompanied by industry, can here easily fit himself for the highest position which the professions of mining and metallurgy can offer.

The Normal School of Mines at Swansea is another institution which is doing a large amount of good in diffusing mining and metallurgical knowledge. Like Sheffield, this town presents some favorable opportunities for witnessing and consequently of studying, the reduction of copper, lead, zinc, gold and silver ores.

Besides the above named schools established chiefly for the purpose of spreading knowledge more particularly in connection

with metallic mining, numerous associations are to be formed amidst the various coal fields, either as local schools or societies, such as to be found in the Northern coal field at Newcastle upon Tyne, also at the Forest of Dean in Gloucestershire, and at Bristol, and I believe at Glasgow one exists, though the metallic mining institution was some time ago closed, owing to deficiency in patronage.

In promoting and diffusing sound information on subjects intimately associated with mining, not only for the benefit of the British Dominions, but as adding to the general stock of human knowledge, and so calculated to benefit all mankind, the London Geological Society and Kensington Museum, ought not to be forgotten, nor the numerous aids and information obtained by the assistance of local geological societies, such for example, as those of Manchester and Newcastle upon Tyne; also the Polytechnic Society of Cornwall, with the Truro and Penzance Museums of Cornwall. In this connection the magnificently colored maps and sections published by the geological survey ought not to be omitted, as their publication has greatly contributed towards the diffusion of a general taste for geology throughout all classes in the slightest degree educated, and more practically made them better acquainted with the economical advantages derivable by their great mining and metallurgical interests, by assisting and promoting such institutions as have thus been cursorily noticed, and a survey of the character just glanced at.

The preceding was set up before I perceived that I had omitted any notice of the Royal Geological Society of Cornwall, which society has published several volumes of transactions, since its institution in 1814, forming a most interesting series, the last volume promised, and which is now probably published, was announced some time ago. It will undoubtedly be a most interesting one to practical miners, as it was promised to be composed solely of statistics and descriptions relating to mining.

Letter from Central Nevada.

BY AN OLD CORRESPONDENT.

MESSRS. EDITORS: It is now many months since I have sent you anything for the columns of the PRESS. During the last twelve months, we have been making substantial progress in developing the resources of this portion of the Silver State. Several of the small veins of Lander Hill, are now opened to the depth of from 300 to 500 feet, and it is considered, as an established fact, that they are not only permanent, but increase slowly in size and richness as a greater depth is attained. The mines of the Manhattan Co., which a year ago were in some quarters thought of little value, have since that time yielded \$600,000 in bullion. Even now, they cannot be said to be opened, though paying handsome dividends to the stockholders. The Florida mine, for the same time has yielded \$160,000 in bullion—its incline being 450 feet deep. The company which owns this lode, has the intention of penetrating the center of Lander Hill, by two shafts, each a thousand feet deep; one of these, the Sherman shaft, is now down some 250 feet, and the other, the Burns' shaft, 150 feet.

The Murphy mine, Twin River District, is proving to be a very valuable property. Its actual yield of bullion from 109 tons of ore, the last quarter of 1867, as proven by the Assessor's returns, was \$144,950, being at the rate of \$132.86 per ton. The mines at Silver Bend have been opening well. The El Dorado south has four feet of ore which by a working test of 18 tons, gave a pulp assay of over \$200. The Highbridge mine of the Combination Co., has yielded a large amount of big grade ore. Its value, however, is not yet known. Ten days ago the mill went into operation with 40 stamps, and although working on the poorest ores, \$13,000 in bullion has already been shipped. The grade, at first, as is usually the case in new mills, was low; but as the furnace gets the right beat, this will be overcome.

Considerable prospecting has been done in Hot Creek, Reveille, Morey and Danville districts, but nothing permanently reliable has as yet been developed, although the prospects are of the most promising kind. The mill of the Century Co., at Newark, 90 miles east of Austin, was doing excel-

lent work, when compelled to shut down for want of salt—the clean up being about \$1,000 a day. The mines of the company are proving to be good—the principal vein in the lowest level, being eight feet wide, of ore, which in the mill, gives a pulp assay of \$100.

Farther east, 150 miles from Austin, the mines of the Social & Steptoe Co. are giving most encouraging results. Down 400 feet, the ore is \$60 to \$80 grade, with large quantities at command. A first-class 20-stamp mill is about to be built on this property. At no previous time have our prospects looked so well as they do now. We have mines of undoubted value, and when the railroad has brought us cheap labor, and generally reduced all our expenses, many of the mines which cannot be worked now, will become very valuable to their owners.

UNDEVELOPED MINES.

I can only allude to one mining section in this letter. About 140 miles southwest of Austin, is situated Columbus District, about which very little has been known hitherto, mainly because the mines were in the hands of poor men, without influence. The Northern Belle lode, is either one of the greatest mines ever discovered in the State, or it is an absolute "bilk." It is a massive vein 15 to 20 feet wide, showing for 700 feet a quality of rusty chloride-looking ore, which, at first sight, one would think of no value whatever. Assays, however, prove even the worst looking of this ore, to contain from \$60 up to \$150 per ton. A hatch or two washed in the Knickerbocker mill, in Union District, gave a pulp assay of \$123. The conclusion arrived at by the tests recently made, is, that the Northern Belle has thousands of tons of milling ore, and is a property of inestimable value. Scarcely any development work has been done, but sooner or later some wealthy company will be far-seeing enough to get hold of this mine, and then Columbus will come into very prominent notice, as a bullion yielding region. The country around the mines is of the most uninviting character; great plains of alkali extending on all sides. It is healthy, however, and has sufficient water for several large mills, and wood in abundance, some ten miles off. If the Northern Belle is half as good as is generally supposed by experienced miners, all the disadvantages of the section will be more than counterbalanced. There are several other mines of fair promise in the district, but none of them have been opened enough to prove their reliability.

J. D. E.

(Written for the Mining and Scientific Press.)

The "Pictured Rocks."

BY PROF. ROWLANDSON, F. G. S. L.

Mr. J. S. Phillips, having analyzed the pictured or landscape rocks now on exhibition, considers that the dark striae and black moss-like outlines, are chiefly composed of manganese; such may be the case, either wholly or partially, and still be far from invalidating the theory that the appearances under notice have been formed by diatoms or protozoans, the former being the more probable supposition. I have in my last paper, shown that diatoms of a black color continue under favorable conditions to flourish up to the present day. What may be the origin of this deep black color in this variety of diatoms, I am not prepared to state, for it needs not necessarily be caused by carbon, for it has to be borne in recollection that the proportion of carbon in the diatomaceae is exceedingly small; the bulk of these organisms being chiefly composed of silica and water. In fact, I have never yet learned of any, even approximative attempt, having been made towards an estimation of the proportion of carbon existing in diatoms.

Ignorant of such proportions, and from inductive reasoning, and analogy, being led to believe that organic matter cannot be formed without the presence of carbon; which is so well understood to be the case, that organic chemistry has not uncommonly been termed the chemistry of carbon; yet I am disposed to believe that in these primordial organisms, the proportion of carbon is exceedingly small. Small, however, as such proportions may be, its presence would be able, to a limited extent, to reduce various salts and oxides from soluble into insoluble

forms, in cases where such have been brought into contact with any carbon resulting from preëxisting organisms. We do not, however, depend wholly upon carbon in order to establish the fact that these organisms can be metamorphosed wholly or partially into metallic oxides. The glauconite or green grains found in the cretaceous formation, the presence of which, in certain rocks has obtained for them the denomination of green sands, are proof that silica can, under certain conditions, be replaced by oxide of iron.

Banded and fortification agates bear upon their face sufficient evidence as to the manner in which they were formed, and many of the so called mossagates or mocha stones, are evidently merely accidentally rude resemblances to the plants whose name they bear. There are instances, however, where a considerable amount of evidence goes to show that the moss-like appearances in section, in such cases, have arisen most probably from a cause not greatly different from those appearances which are now to be seen on the landscape rocks. The variety of color might be formed in two ways, in the instance of moss agates. In the first place, if a diatomaceous growth occurred in a silicious substance, highly intermixed with peroxide of iron, or the decay of these organisms, the adjoining portion of such peroxide would become converted into a proto form, and thus become of more easy solution by carbonic acid, soluble silica or any free mineral acid; in consequence of which it would easily become washed out, on the conditions for the latter being present. On the event of such occurrences taking place, the coralline or moss-like form of the diatoms would present a lighter colored appearance than the surrounding parts of the stone.

In other cases the enclosing stone, where such organisms grew, might have originally been of a lightish color, and the whole of the carbon originally present may have been dissolved out from various causes which it would be easy but tedious to describe.

If, after this last named event has taken place, the stone should become saturated with an iron per salt, such would easily become decomposed if any alkali or alkaline earth was simultaneously present, as is almost invariably the case; the per or red oxide of iron would in such an event become precipitated, and fill up the prior existing diatomaceous forms, and so present a deep red color, on being cut into sections.

As if, however, to puzzle and put to fault, at least for some time to come, all fine drawn theories on the subject, such as I have perhaps rather spun out than made perfectly intelligible, Mr. J. S. Phillips has shown me a specimen which he brought from the Humboldt district, that is completely covered with what resembles small sprigs of moss sprinkled through the substance of the stone, which latter Mr. P. considers to be feldspathic. It certainly, to exterior appearance, resembles a compact feldspar or feldspathic lava, but the figures seen on its surface and interspersed through the mass negative such a conclusion, unless, indeed, both are formed by crystallization.

In slaty districts the moss-like forms so often alluded to, are frequently found delineated on each side of a slaty fissure, the sides of which, where such forms have become delineated, appear to be eroded. I had always, prior to seeing the landscape rocks, been in the habit of mentally ascribing the origin of such figures, to the effects caused by a lichen growth. I am now inclined to believe that diatoms have possibly some connection with these phenomena.

CERRO GORDO ITEMS.—Col. Stevens' furnace near Lone Pine is running at intervals. Difficulty is experienced in finding fire-proof material.

But little is done just now in Cerro Gordo on account of the season, the bridge over Owen's river having been washed away. Communication with Independence and Lone Pine is interrupted. The river is now crossed in a small boat, but the bridge will soon be replaced.

The San Ignaiw mine has been conditionally sold to San Franciscans. Twenty tons of first class ore will be taken out and shipped to San Francisco at once.

Mechanical.

EXPANSION OF STEAM.—GOVERNMENT EXPERIMENTS.—Just after the commencement of the late war, Mr. Isherwood was appointed Engineer in Chief of the Navy. Large quantities of steam machinery were at that time required for the service. Mr. I. having embraced the theory that the previous notions upon the subject of steam expansion were not based upon truth, planned this machinery in accordance with his own ideas. The result of the innovation was an extravagant expenditure of fuel and a low rate of speed. Complaints followed. Scientific engineers brought the matter to the notice of Congress; and in consequence, a Board was appointed some three years since, for the purpose of testing, by experiment, the soundness of Mr. Isherwood's views, and an appropriation placed at its disposal. The Board consists of three members of the National Academy of Science, three members of the Franklin Institute, Rear-Admiral Davis, Chief-Engineer Isherwood of the Navy, and Horatio Allen, President of the Novelty Iron Works. The experiments, says the *Artisan*, which have been conducted by this Board under the supervision of Mr. Allen, have been in progress for nearly three years, and the accurate and minute information which has been recorded will undoubtedly prove of the greatest value to practical engineers. The experiments thus far are decidedly in favor of the expansive use of steam. It is said by experts that the machinery of some of our largest naval vessels, built upon the plan of the Bureau of Steam Engineering, is so faulty as regards economy, that very important changes will have to be made in its construction.

WHAT IS STEEL?—The *Artisan* has an interesting article under the above head, a portion of which we condense: Steel was at one time defined to be "iron which will harden, temper and weld." Afterwards the name steel came to be understood to belong to iron combined with one per cent. of carbon. Later, new names had to be invented for the softer kinds of steel. The varieties became more numerous, and the boundary line more difficult to draw; and in fact it was found that the carbon could be so gradually decreased, as to form a continuous series between cast and wrought iron. "Cyano-gen" steel, "tungsten" steel, "chrome" steel, "titanium" steel, "silicium" steel followed. We propose that all the old styles of steel be called carbon steel, for the sake of distinction. In the widest sense which we now desire to give to the word steel, there would be such a thing as sulphur steel and phosphorus steel. Sulphur steel is the compound used in the Swedish gun factories for casting their heavy iron cannons. The great strength of these castings, and their extraordinary power of endurance, are ascribed to the sulphur. In fact, it is understood that sulphurous iron is purposely added to purer kinds of charcoal iron in order to produce this superior strength. Phosphorus steel is the material of the Berlin castings. An iron free from all other impurities, and containing a considerable percentage of phosphorus, is extremely liquid at a comparatively low heat; it fills the finest cavities of the molds, and can be cast into the most delicate forms. This material is brittle, and of small cohesive power when cold, and so it virtually has the very opposite properties to sulphur steel.

COMPRESSED AIR POWER DISTRIBUTED LIKE GAS.—Some French engineers have been making plans for the distributing of compressed air through a city by means of pipes, as gas and water are now distributed. The air may be compressed by steam power, or, if a river is at hand, more cheaply by water. With such an arrangement, all that would be necessary in any house for running a sewing machine, or turning lathe, or roasting spit, or anything else requiring power, would be to "turn on the air." The power would have to be paid for, of course, according to the exact amount used; whereas, if a small steam engine is employed, it must be kept running constantly to do work which is only required at intervals throughout the day. We have before alluded to the fact that such a plan had been proposed.

IMPROVEMENT IN IRON MANUFACTURE.—A Pennsylvanian by the name of Stewart, has patented a plan for purifying iron by pouring it in a shower direct from the blast furnace through a cylinder thirty feet in height, into which atmospheric air, or any other oxygen-bearing gas or vapor, is introduced. This is apparently not only an improvement upon the plan of forcing the air into the metal, which requires expensive apparatus, but it removes by combustion, not the carbon only, but also all other impurities, bringing, as it does, every particle of the metal into contact with the oxygen. The inventor claims to produce by this process, wrought iron ready for the rolling mills without machinery, and almost without time.

IMPROVED BLAST FURNACE.—A furnace invented by a chief engineer at Osnabruck, Germany, Mr. Lurmann, has now been in use for nearly twelve months. In this furnace, the hearth is closed all round, and there is neither tump, fore-hearth, nor dam stone. The slag stands constantly at the same level, and there is a cast iron slag hole, kept cool with water, about six or eight inches below the center of the tuyres. In the use of this furnace no stoppage is necessary for tapping and for cleaning the fore-hearth, and no cooling takes place. The orifice through which the iron is drawn off is opposite the slag hole, and of course at a lower level. The slag hole is not closed before tapping the iron, since the slag stops running of itself when the iron begins. The flow of slag may be regulated by means of the water, cooling the discharge piece; since by strongly cooling the latter, the slag is "frozen" in the passage, reducing the size of the discharge, and vice versa. During the entire process the blast is not interrupted, nor the pressure diminished. The size of the slag hole varies from one inch to two and a half inches. Furnaces of the ordinary construction can easily be altered to the new form.—*London Mining Journal*.

SINGLE AND COMPOUND ENGINES.—Compound engines, as compared with single engines, are necessarily much more complicated, and have more friction, and their cylinders present more external and internal cooling surface for the loss of heat by radiation. On the other hand, the total pressure upon the cranks is more nearly uniform throughout the stroke than in single engines, and there is not so great a range of temperature in either cylinder as there is in the cylinder of a single engine. The great uniformity of pressure upon the cranks of compound engines is of value in long stroke, slow-moving pumping engines, where a column of water has to be changed in direction at every stroke. But in quick-going engines, driving rotating machinery, single engines are found to have all the uniformity of motion requisite for fine cotton-spinning, even when the engine is expanding its steam ten-fold.—*Engineering*.

TESTS FOR STEEL.—Good cast steel will not bear a high heat without injury, and when raised to "white heat" will fall in pieces upon receiving the slightest blow; even at a bright red heat it will sometimes crumble under the hammer. When heated to a "cherry-red" it can be wrought with safety, and can be drawn to a very fine edge or point. Inferior steel will not so crumble, but in its action will approximate to good wrought iron. One of the tests to distinguish steel from iron is nitric acid, or aqua fortis; when the acid is applied to the clear metallic surface it will leave a black stain upon steel due to the carbon present, but will not so color iron.—*Artisan*.

TO COAT IRON WITH COPPER.—This may be done by plunging it into a boiling solution of a compound of copper with an organic acid (such as the double tartrate of copper and potash), with excess of alkali, and holding it with a brass wire during the immersion, which may be longer or shorter, according to the thickness of coating desired.

PERPETUAL SNOW.—Humboldt fixed the altitude of perpetual snow under the equator at 15,748 feet. On the northern side of the Himalaya Mountains it is about 17,802 feet; on the Alps and the Pyrenees it is about 8,850 feet; at the North Cape, in latitude 71 degrees, it is estimated at little more than 2,000 feet.

Scientific Miscellany.

MAGNETIC PHANTOMS.—The figures in which iron filings arrange themselves upon paper placed over a magnet have been called "phantoms." These are not mere objects of curiosity, but are useful for determining certain facts in regard to the poles of magnets. A method of fixing these figures for preservation has been to cover the paper with wax or stearine, and place near it something hot enough to keep this in a melted state. As soon as the figures are developed, the hot body is removed, and the wax cools, thereby fixing the figures. But a new and much better process has just been contrived by M. Meunier. The paper is impregnated with ferro-cyanide of potassium, and dried. Instead of iron filings, magnetic iron sand is used. When the phantoms are developed, chlorhydric gas is passed over them for a few seconds. This decomposes the ferro-cyanide, changing its yellow color to blue where the iron sand touches the paper. The sand is then thrown off, and the paper washed thoroughly in water. It is then dried, and can be preserved for an indefinite time. The sand is used instead of the iron filings, because it is not attacked by the gas; while metallic iron would give chloride of iron, which would soil the paper.

INDIUM.—This metal was discovered about five years since, in Freiberg, Saxony. Thallium having been found in some of the furnace products, the ore was examined to ascertain its source. After roasting, it was mixed with hydro-chloric acid, evaporated to dryness, and distilled. An impure chloride resulted, which was examined before the spectroscope for thallium; but instead of giving the line characteristic of that metal, a bright blue one appeared, which was entirely unlike that of any known substance, and after further experimentation, it was pronounced to indicate a new metal, which was named indium.

M. Richter exhibited at the late Paris Exposition, some ingots of indium which weighed about 1,500 grains, and were valued at nearly \$2.50 per grain. This gentleman has recently published his method of preparing the metal from zinc. The zinc is dissolved in sulphuric or hydro-chloric acid, and the residue, which is composed of zinc, indium, and other metals, is treated with nitric acid. The solution is evaporated with sulphuric acid, diluted, and a current of sulphureted hydrogen gas passed through. The indium is almost completely precipitated with the cadmium and copper. The precipitate is dissolved in hydro-chloric acid, and precipitated by ammonia. By repeating the process several times the whole of the zinc and cadmium is separated. Finally, the small quantity of iron still mixed with the indium is removed by a partial precipitation with ammonia and carbonate of soda. Indium is obtained by reducing the oxide; this may be effected by heating in a current of hydrogen gas, or by the power of a voltaic battery.

PRESERVATION OF STONE.—The *Chemical News* notices a new process for hardening stone by the application of a solution of oxalate of alumina to its surface with a brush. The stone must contain lime. Limestone, dolomite, or chalk, are suitable subjects for the process. The surface becomes changed by the application into oxalate of lime, which is very insoluble, while oxalate of alumina is easily soluble in water. Chalk so prepared becomes as hard as fluor spar. This promises to be a valuable invention for building purposes, and perhaps for the preparation of stone for the use of lithographers.

INTERESTING RELIC.—A papyrus which has been recently added to the British Museum, contains part of a treatise on geometry, with illustrative diagrams. Mons. Lenormant, a member of the French Academy, has been studying it with great attention. He has referred its date to a time contemporaneous with the reign of Solomon.

THE CHEMISTRY OF PAINTS.—Mulder rejects all oil paints for the protection of iron from rust, and concludes that coal tar makes the best coat for the purpose. He says that the essential constituent of linseed oil is "linolein," a compound of glycerine and linoleic acid. The formula for this acid is $\text{HO}, \text{C}^3\text{H}^4 \text{O}_3$. When exposed to air, it rapidly oxidizes; first to "linoleic acid," a sticky body resembling turpentine. On longer exposure, "linoleoxy" is produced. This is a tough, leathery substance, sharing many of the properties of caoutchouc. It is soluble in the same menstrua, and can be vulcanized like india rubber. It is manufactured in considerable quantities in this country, and is the binding material used to consolidate emery wheels. To prepare a good colorless drying oil, Mulder boils linseed oil for two hours with three per cent. of red lead, filters it, and then exposes it to sunlight in large shallow vessels, frequently removing the air above it. He denies the existence of aluminous and gummy matter in linseed oil, to which has been ascribed the slowness with which unboiled oils dry. Oxides and acetates of lead, he tells us, act as driers, not by precipitating aluminous matters, but by forming a little linoleate of lead, which rapidly oxidizes and communicates its activity to the oil.—*Mechanics' Magazine*.

We noticed not long since, the beautiful philosophical experiment which illustrates the effect of sonorous vibrations on the ordinary gas flame. Prof. Tyndall, of the Royal Institution, London, has repeated on a large scale, an experiment of Savart's, showing the influence of sonorous air waves on a jet of water. Water was discharged, obliquely, from an ordinary gas-burner. By the aid of an electric lamp, the shadow of the vein, as it broke into scattered drops, was thrown upon a large white screen. On sounding an organ pipe, or a steel tuning fork, of proper pitch, the drops would reunite in a continuous stream and form on the screen, a band, several feet in length. When the sound ceased, the vein again broke into drops. The minuteness of the force required to produce this effect, was shown, by placing a tuning fork just after its vibrations had ceased to be heard, against the support of the nipple from which the water issued, when the drops would instantly coalesce.

HEAT OF FUSION.—The melting point of metals and fusible silicates is lower than usually stated. Wedgwood's pyrometer and other similar measuring instruments have been found to be quite unreliable for high temperatures. Herr C. Sching has shown, by the application of the thermoelectric pyrometer, that the temperature of a glass furnace in operation is only from 1,100° to 1,250° Centigrade. Crystal glass becomes completely liquid at 929° C., and is worked at 833°. A Bohemian glass tube softens at 769° and becomes liquid at 1,052° C. Pure limestone loses its carbonic acid by heating for several hours at 617° to 675° C. The gas can be driven off more rapidly by increasing the temperature.

SORBONNE.—The new laboratory at the Sorbonne (Paris) will be one of the most perfect establishments of the kind. Rooms will be devoted to the pursuit of chemical researches, and to the study of optics, electricity, etc. In addition to the ordinary gas, the laboratory will be furnished with a similar supply of oxygen, which will be constantly manufactured so as to be always ready when required.

PRUSSIAN MECHANICS.—Several owners of Prussian machine shops and factories sent each a number of their employés to visit the Great Exhibition at Paris, at their own expense. Besides those who were thus enabled to go, a committee, which was organized for the purpose, sent over one hundred others, each of whom was required to furnish a report of his observations. Seventeen reports have already been sent in. These will be published for gratuitous distribution.

In a lecture given by him at the Royal Institution, London, Mr. Glaisher stated that the temperature of the air does not decrease uniformly with the height above the earth's surface, and consequently the theory of a decrease of one degree of temperature for an increase of elevation of 300 feet, must be abandoned. In fact, more than one degree declined in the first 100 feet, when the sky was clear, and not so much as one degree in 1,000 feet, at a height exceeding five miles.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand, New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

RECENT INVENTIONS.

A NEW BERRY BASKET.—Hitbert to most of our small fruit—cherries, currants and berries—have been received from the ranches in boxes or drawers holding from eight to twelve pounds each. These drawers fit into a larger box made in the shape of a small bureau. The plan is objectionable, as the berries are apt to be jammed by the weight of so many large tiers, and the juice spreading through the mass causes the whole to soon become moldy. Then, too, in retailing, the berries being delivered in paper bags, are subject to much squeezing and injury before reaching the table of the consumer. L. A. Gould, the fruit raiser of Santa Clara, has applied through this office for a patent on an invention calculated to do away with these drawbacks. By use of a peculiar machine he cuts any kind of moderately tough and pliable wood, as sycamore, cypress or laurel, in ribbons two and a half or three inches in width, and very little thicker than heavy wrapping paper. These ribbons are then cut into sections, say ten or twelve inches in length, and bent so as to form four sides of a square. Two of these are then placed together in the form of a flat-bottomed basket or open at the top, but double at the bottom, and the edges around the top bound by a narrow strip of tin run on with machinery, so as to hold the strips in their places and form a perfect basket. Each of these baskets holds a pound of fruit, and 126 will be packed in one box for shipment when filled. They cost less than two cents, perhaps not over one or one and a half cents each, and are intended to be delivered to the purchasers in the market to be retained. They will not add to the cost of a pound of fruit as delivered to the purchaser, being about as cheap as paper bags, and will be gathered in by old bottle and sack dealers to be resold at reduced rates to the marketmen. The invention will be found a very useful one.

NEW SEWING MACHINE.—It is stated that Mr. A. G. Waterhouse, of Sacramento, has invented a sewing machine—simple, cheap and plain, working like a pair of scissors.

KINMAN AHEAD AGAIN.—The Humboldt Times of Jan. 25th, says Mr. Seth Kinman has exhibited in that place during the week, the model of a potato digger of his invention, for which he has taken the necessary steps to secure a patent. Every one who has examined the machine expresses the conviction, that Mr. Kinman has at last produced what so many have in vain tried to accomplish, namely, a machine that will turn potatoes out of the ground. Aside from this opinion, Mr. Kinman asserts that it has been tested in the field, and that its success does not depend on future experiment.

PETROLEUM vs. GAS OR STEAM AS A MOTIVE POWER.—A new motive power has just been devised in Philadelphia, which, it is claimed, has great advantages over steam. In one end of the cylinder now in use is introduced a mixture of one-tenth vapor of petroleum and nine-tenths air. This combination is as combustible as gunpowder. When in operation a lighted paper is introduced, the gas takes fire, drives the piston head to the other end of the cylinder, and the residuum makes its escape through a chimney. The same operation is repeated at the other end, and thus the power is obtained. The taper glides back and forth like a weaver's shuttle, applying the torch at the right moment. No boilers, pumps, or condensers, are needed, and the whole can be packed in a very small space.

PATENTS RECENTLY ISSUED.

73,756.—PREPARATION OF DYE.—John Reynolds, San Francisco, Cal.:

I claim a new article of manufacture in a preparation for dyes of the materials specified, and substantially as described.

73,838.—METHOD AND MEANS FOR TREATING ORES OF GOLD AND SILVER.—Louis Edouard Rivot, Paris, France, assignor to Jacques Gaillardon, San Francisco, Cal.:

I claim 1. The roasting of silver and gold ore by superheated steam in the manner as herein described, that is, by separating

the ore from the flames by the interposition of cast iron plates, and by superheating the steam in the furnace itself, substantially as shown and described.

2. The reverberating furnace, substantially as herein described, when provided with steam pipes on or about the fire bridge for discharging steam upon the sole, whether such furnace be arranged for burning vegetable or mineral fuel, as set forth.

3. The arrangement, as herein shown and described, of a double furnace, or of a single furnace with two fire chambers, together with the use of cast iron plates at the level of the fire bridge, to separate the flames from the ore, substantially as set forth.

4. The arrangement of the furnace herein shown and described, in which superheated steam is made to impinge upon the ore, when separated from the flames of the fire chamber.

5. The method of amalgamating the roasted ore, without the adoption of any reagents, in apparatus of ordinary or suitable construction, substantially as herein shown and set forth.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

BROOKLYN PARK HOMESTEAD ASSOCIATION.—March 10th. Capital stock, \$150,000; 500 shares, \$300 each. Trustees: Edward Tompkins, Joseph DeForest, Henry O. Howard, Henry F. Williams, and Silas Selleck.

CITY GARDENS ASSOCIATION.—March 10th. Capital stock, \$600,000; 6,000 shares, \$100 each. Trustees: E. R. Carpentier, P. H. Canavan, G. H. Eggers, T. J. Poulterer, and O. Schoemann.

JUNCTION HOMESTEAD ASSOCIATION.—March 11th. Capital stock \$105,000; 300 shares, \$350 each. Trustees: S. B. Wattson, H. M. Rosekrans, Peter Johnson, and J. W. Hoffschneider.

BROOKLYN PARK ADDITION ASSOCIATION.—March 11th. Capital stock, \$27,000; 90 shares, \$300 each. Trustees: Samuel Gilmore, J. F. Harris, Charles M. Yates and G. W. Doolittle.

CITY VIEW HOMESTEAD ASSOCIATION.—March 12th. Capital stock, \$18,600; 62 shares, \$300 each. Trustees: Wm. Monahan, Simon Cohen, John G. Hayden, J. W. McKenzie, Jno. H. Morgan, M. Crowell, and H. V. Herbert.

OAKLAND VIEW HOMESTEAD ASSOCIATION.—March 12th. Capital stock, \$86,800; 248 shares, \$350 each. Trustees: O. B. Fogie, Silas Sellock, Louis Visana, Jno. G. Valentine and T. R. Reynolds.

VALLEJO WATER CO.—March 12th. Capital stock, \$90,000; 1,800 shares, \$50 each. Trustees: Edward Martin, Henry Connolly and Jno. Frisbie.

SISTERS OF MEROY.—March 12th. Trustees: Mary Gabriel Brown, Mary Baptist Russell, Mary Joseph O'Rourke, Mary Francis Benson and Mary Bernard O'Dwyer.

ELECTION OF OFFICERS.—SHIP CAULKERS' ASSOCIATION.—March 11th. President, Michael McNulty; Vice President, J. B. Robins; Secretary, Daniel Hanlon, Treasurer, John Dolan; Sergeant-at-Arms, James Lane.

BARRY & PATTEN have filed a trade-mark for a tonic cordial, called "The Excellent."

THE SIERRA COUNTY SNOW SLIDES.—The Downieville Messenger of March 6th, gives full particulars of the damage done by the avalanches at the Independence and Keystone mills on the 3d and 4th insts. All that remains of the Independence mill, the finest in the county, is the battery and one wheel,—the stamps and stems even being wrenched out and carried away. Mr. J. Woods, the Superintendent, was killed.

An Italian who owned some arastras below the mill, was carried away in his cabin, and was also killed. The Keystone mill was all destroyed except the battery and engine-house. The boarding-house was crushed, and five men killed therein. Some six or seven others were injured.

THE LAST SWEET THING IN EAR-RINGS.—Little globes of crystal, filled with water containing miniature fishes and mollusks, are, it is said, now worn in Paris as earrings.

PRESERVE YOUR SIGHT.—Adopt spectacles suited to your eyes. C. Muller, Optician, thoroughly understands his profession, 205 Montgomery street.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING, March 14, 1888.

City Stocks.

Transactions continue light. California Steam Navigation stock sold at 75@74 per cent. The usual dividend of 1½ per cent. is payable on the 16th. San Francisco Gas at 70@73, and North Beach and Mission Railroad at \$60 per share. The usual dividend of the State Telegraph Company—\$1 per share, aggregating \$25,000—is payable on and after the 16th inst. The Bank of California disburses its usual dividend—1 per cent. per month—on the 16th inst. On the 10th inst., the Merchants' Mutual Marine Insurance Company disbursed a dividend of 1 per cent. on its capital stock. For full quotations, we refer our readers to the third page of this circular.

Mining Share Market.

During the past week the mining share market has maintained the activity heretofore noted, though the various descriptions of stock, with few exceptions, show a very material recession from former prices. Time sales are at present made with more freedom than for some time past, and the opinion seems to prevail that prices will fall to a still lower range before the regular spring renewal of activity and general advance.

HALE & NORCROSS—came into the market again on the 12th, immediately after the election, selling at \$2,900 seller 15.

At the annual meeting of this company, held on the 11th inst., all the stock—800 shares, or 400 feet—was represented. The following gentlemen were elected Trustees for the ensuing year: Jos. Barron, Thos. Bell, A. Hayward, Geo. S. Mann, M. Morgenstau, Thos. Sunderland and George Wallace. Subsequently the following officers were re-elected: Geo. S. Mann, President, and Joel F. Lightner, Secretary. From the President's succinct annual report we extract the following:

"During the first six months of the past fiscal year, the Trustees were enabled, from the profits of the mine, to pay the monthly dividend of \$125 per foot, amounting in the aggregate to \$900,000; when the fact became apparent, which had been feared for some time would prove to be the case, that the vein of ore, when opened on the 780-foot level, instead of maintaining the average width, as the 700-foot level above, narrowed to 5 and 4 feet, and in winzes sunk below the 780-foot level, to a width even less than the above. The reduced production of the mine, consequent upon the above cause, necessarily cut off all dividends, and compelled the levying of an assessment of \$150 per foot, to meet the expenses of the mine, and to pay for the labor and material employed in the construction of our new works. The Trustees then gave orders for the hastening of the sinking of the new shaft to the depth of 150 feet below the 780-foot level, at which point a drift was run that encountered a new body of ore, to the eastward of the quartz, containing the old vein above, and which promised, when first cut, to exceed in value anything that had ever before been found in the mine. This expectation, however, has not been altogether realized, for, in drifting north on the vein, bodies of porphyry and waste have been encountered, which at one time reduced the ore body to 2½ feet in width, but, at this present writing, has assumed a more promising appearance, and in drifting thereon, has again widened to 4 and 6 feet. In raising on the above body of ore, its fair quality is maintained, and its yield is estimated at from \$35 to \$40 per ton. The explorations thus far made are insufficient to enable any one to calculate, with any accuracy, the amount of ore standing in our present stopes, and its probable value. Our new works are now about completed, and, I believe, are in every way substantial, and ample for the purposes intended. Every preparation for the further sinking of the new shaft, for another level, is now made, and the work awaits only the orders of the Trustees to be again resumed."

Immediately after the election the Board ordered the sinking of the shaft to a further depth of about 137 feet. From the Superintendent's annual report we learn that on the first of March, 1887, the ore on hand amounted to 768 tons. The product of ore during the eleven months ending January 31, 1888, was 25,432½ tons, taken from the following points: 175 level, 254½; 300 level, 172; 700 level, 5,722½; 780 level, 16,215½; 830 level, 2,415½; and second station 930 level, 652½ tons. Of the quantity extracted, 213 tons of a low grade were sold, averaging \$4 35 per ton; 25,333 tons were reduced, showing a bullion product of \$864,938 45—an average of \$34 14 per ton, or 65½ per cent. of the company's assay value taken at the mine. The cost per ton of reducing the ore was \$14 23. From the Secretary's report we condense the annexed financial statement, embracing transactions from March 21st, 1887, to February 29th, 1888, both days inclusive:

RECEIPTS.	
Cash on hand, March 31, 1887.....	\$133,288 99
Assessment No. 30.....	60,000 00
Ore account—25,546 tons.....	\$63,925 45
Premium on bullion.....	6,326 46
Other receipts.....	82,453 71
	\$1,148,524 61
DISBURSEMENTS.	
Ore account—reduction.....	\$360,105 63
Dividend account.....	300,000 00
Fair shaft.....	212,634 85
Mine account.....	207,054 92
Sundry accounts.....	67,850 28
Cash on hand.....	183 93
	\$1,148,524 61
ASSETS.	
Cash on hand.....	\$183 93
652½ tons of ore, less reduction.....	12,989 70
C. G. Thomas, Superintendent.....	3,734 25
Property—debt.	
Real estate and hoisting works.....	121,489 36
Superintendent's residence.....	2,000 00
Personal property.....	48,014 80
Office furniture.....	954 00
	\$189,366 04
LIABILITIES.	
Quarterly tax on proceeds to Dec. 31st.....	\$471 28
Pioneer mill—reclamation.....	421 30
Due Bank of California.....	61,784 52
Bills payable.....	7,283 08
	\$69,960 38

Excess of assets over liabilities..... \$119,405 66
Crown Point—declined from \$1,895 to \$1,625, and closed at \$1,735. The drift from the 800 level continues

very wet and loose, and the ground is said to be a mixture of fine white quartz and porphyry. A winze ten feet in depth from the 700 level (twelve feet from the line) is said to be in good ore. The drift going south is seventy-seven feet from the line, and carries good ore in the face. Both east and west bodies, on 600 level, are reported to look well. Advice to the 10th, state that this drift on 800 level was improving, and the winze mentioned above was thirteen feet in depth and looking well.

OTHER—was in moderate request at \$197 50@170, closing at \$172 50. So soon as fair weather sets in the foundations at the new shaft for the erection of machinery will be completed. The recurrence of wet weather has so far frustrated their efforts.

COLLAR-POROSI—exhibited a little more activity, selling within a range of \$190@168, then at \$222 60, assessment of \$50 delinquent, and at the close realizing \$225. During the week ending March 6th, this mine yielded 170 tons of ore, while 232 tons were taken from the dump during the same time. The Blue Wing station produces about thirty-five tons of milling ore daily. The total bullion product in February amounted to \$30,526 93 against \$41,000 in January. The delinquent list will be advertised on the 17th inst.

SAVAGE—changed hands to a very large extent, under a material decline, falling from \$175 to \$149, rallying to \$159, and closing at \$157. During the week ending March 7th, 592 tons of ore were extracted, valued at \$18,408, or \$31 09 per ton, and of this amount the north mine, on the third station, yielded 398 tons. 680 tons were sent to mills, and at the above date 1,138 tons remained on hand at the mine. In the north drift, on the fifth station, a clay seam was found to cross the ore, and quits a stream of water issued from it; however, the ore inside the seam is said to be poor. In the south mine, on the same level, they penetrated the ledge, which is about five feet wide, but is reported not to look as well as on the fourth station; however, it is believed it will improve as they go south on it. The bullion product during the month of February amounted to \$181,658 96, leaving a surplus of about \$40,000 after paying the usual monthly dividend of \$5 to-day.

IMPERIAL—opened at \$260@272, declined to \$242 50, rallied to \$260, and closed at \$257 50. Work in the shaft and drift progresses slowly, owing to the presence of a large body of water. The ore in the west drift is growing poorer as they continue north on it, and the yield of the amount taken from this locality and recently reduced gives but \$15 62 to the ton. The usual quantity is extracted from the Alta and Holmes mines. The first clean-up from the Rock Point mill for the current month amounts to \$10,637.

OVERMAN—was less active, opening at \$179, dropping to \$144, advancing to \$185, and closing yesterday at \$180. The receipts of bullion aggregate about \$13,000, while about \$14,000 have accumulated at the office in Nevada, awaiting the receipt of Wells, Fargo & Co. to forward to this city. The ore is said to improve in raising on the 361 level, otherwise no change.

KENTUCK—has been well maintained, advancing from \$283 to \$295, falling to \$287 50, then selling at \$290, and closing at \$292 60. The receipts of bullion so far for February amount foot up \$38,043 14. A dividend of \$5 per share is payable to-day.

AMADOR—was in the market at \$300 seller 30. The mine continues to yield well. In February 2,106 tons of "rock" were reduced, showing a yield of \$22 72 to the ton.

GOULD & CURRY—sold at \$620@560, then at \$600 and closed at \$630. We learn that this company has about 4,000 tons of ore on their dump, and that the daily product of the old chambers is at present about forty tons.

YELLOW JACKET—declined from \$1,250 to \$1,130, rose to \$1,165, and closed at \$1,140. We learn of nothing important concerning this mine.

GOLD HILL QUARTZ—sold to a larger extent than for a long time past, improving from \$100 to \$125, falling to \$90, and at the close selling at \$95. We learn that the liabilities of this company, on the 29th ult., amounted to \$8,404 37, and as an offset to this they have merchandise chemicals, etc., valued at \$7,405 90, showing a deficit of \$938 47. An assessment of \$20 per share was levied on the 13th instant. As regards the mine the 450 level is said to show better rock in the face and in the "raise."

EMPIRE—was in the market at \$280. The bullion product in February amounted to \$16,601, against \$16,050 in the month of January.

ALPHEA—a few feet changed hands at \$1,350@1,320.... BELCHER receded from \$295 to \$255, then sold at \$272 50 and at the close \$275 is bid.... BULLION declined from \$60 to \$47 50, and closed at \$55. An assessment of \$10 was levied on the 6th instant.... DANEY improved from \$22 to \$37, and closed at \$35.... LADY BRYAN declined from \$29 to \$22 50, and at the close sold at \$23 50.... EXCHEQUER sold at \$47 50@36, then at \$43, and closed at \$42.... SIERRA NEVADA, at \$20@24, closing at \$22.... SEAGATED BELCHER opened at \$20, declined to \$15, and closed at \$18.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,797,956; open sessions, \$451,416—total \$2,249,372.

SEE advertisement of Bussey's Patent Burglar-Proof Safe Lock, to be found in another column.

CONTINENTAL Life Insurance Company
302 Montgomery street, corner of Pine.

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Markleeville Miner, Feb. 29th: The contractors on the Imperial mine, have completed their first section of 25 feet.

The Superintendent of the Morning Star mine started a drift east from the 110-foot level of the shaft on Thursday. Prospects are favorable for soon tapping the lode and getting good ore.

Work has been commenced on the Isis lode.

Those sulphurets, noticed last week, taken from the Lateral tunnel of the Monitor C. M. Co., have been tested and found to contain silver. The decomposed substance in which they are found has been encountered for the last 26 feet or more. This tunnel is now in 73½ feet, and has cost so far about \$2.50 per foot. The rock is getting firmer now, however, and progress will be slower.

We noticed yesterday a commencement of work on the dam of the Mt. Bullion mill-site, just above the tunnel of the Imperial on Carson River. This Co. is running a tunnel for a series of claims near by.

Amador County.

Jackson Ledger, March 7th: Last Saturday, the semi-monthly clean up was made at the Oneida mine, and the yield was a little over \$13,000 extracted from about 1,000 tons of rock. The ore worked on this occasion, was taken indiscriminately from the mine, some of it considered of little value. The next run will be made from the ore taken from the 500-foot level, and will prove more valuable than any heretofore worked. The mill has been supplied with an additional boiler, and is now running sixty stamps.

The last month's run at the Coney & Bigelow mine, was a very encouraging one, when it is considered that the rock worked was of a miscellaneous character. From the plates and batteries \$6,300 was taken, and the value of the sulphurets saved is not less than \$1,000, and will probably run up to \$1,200. It is safe to say that the proceeds for the month, with 16 stamps, will amount to \$7,500. They are still sinking, and will continue to do so until their shaft is 50 feet deeper than at present. While the process of sinking is going on, the mill will be enlarged by an addition of ten more stamps—the material for which is on the spot, thus giving them a crushing force of 26 stamps.

During the month of February, not less than \$90,000 in gold was taken from four of our quartz mines—the Keystone, Eureka, Oneida, and Coney & Bigelow.

The owners of the Kennedy mine have made a contract with Messrs. Coney & Bigelow to crush 200 tons of rock for them. They will commence in a day or two, or as soon as the road from the mine to town will permit the hauling of rock.

The Hayward mine, known as the Amador Mining Co., located at Sutter Creek, in this county, has lately changed hands. Michael Reese, Lloyd Tevis, M. S. Latham, Mr. Gashweiller and John A. Faull, have purchased a large majority of the stock—paying therefor about \$1,000,000, and will in future have control of it. The ore exposed at present is estimated to be worth \$1,000,000.

Dispatch, March 7th: The owners of the Kennedy mine, contemplate building a mill at their mine, as soon as suitable lumber can be had and brought to the site.

The chlorination works of the Coney & Bigelow mine from a few days working, turned out \$3,500 in gold, which was assayed by P. Reichling, of this place, and found to be .996 fine.

Butte County.

Marysville Appeal, March 5th: Dr. O. P. Warren, of San Francisco, an old resident of this section of the country, whose appearance reminds us of "flush times in California," passed through our city yesterday, en route to his mining claim near Oroville, upon which there has recently been erected a quartz mill, for the purpose of extracting the "auriferous and argentiferous" metals. The Co. is now about making its first clean up, and hopes are entertained that the amalgamating pans may disclose a prolific yield for the first run, as the tests of the ore are very flattering.

Calaveras County.

Chronicle, March 7th: Intelligence from the Golden Gate claim is cheering. The last washing yielded the sum of 100 ounces, the result of the labors of six drifters for three weeks. As the gravel is exceedingly hard to wash, and has to be run through

the sluices without becoming perfectly dry to slack, it is safe to presume that not more than half of the gold was extracted. The tailings, however, are carefully preserved, so that no actual loss is sustained. During the coming spring it is the intention of the company to substitute more powerful machinery in the stead of that now in use, and erect a mill for the purpose of crushing the gravel as it is taken from the claim. We are also informed that the "incline" tunnel through which the mine is worked is to be enlarged to double its present size, so as to admit of the laying of two tracks.

The Co. owning the Mokelumne Hill and Campo Seco canal have again commenced sluicing the sediment out of their large reservoir. They intend to complete it so as to be enabled to keep up a supply of water, the year round, for the new mines at Cat Camp, where there are about 60 companies at work, taking out about \$18,000 per week.

A correspondent writing from Mokelumne Hill says: The Center House claim, between San Andreas and Stockton roads, was superficially prospected some years since, and has very recently fallen into the hands of the present company. I think this is a valuable mine, and without question a true lead. The present owners are erecting houses, whims, etc., with the view of thoroughly exploring the mine; and with the prospect already obtained, it will soon take its place in the front rank of Calaveras quartz mines. During the past summer there was five tons of rock from this mine, taken to Harris' mill, Sandy Gulch. It yielded at the rate of \$10 per ton. Later in the season there was a lot of 50 tons worked in the French Mill at Red Gulch; this lot paid \$7 per ton by simple battery amalgamation, and I am told that the screens used while crushing the last rock, were very coarse; this accounts in some degree for the great difference in the value of the ore crushed at Harris' and the Rich Gulch Mill. The next claim, that of D. C. Lamphear & Co's, known as the "Sport Hill Quartz Mine." There have been several hundred tons of rock from this mine worked in the different mills in this vicinity, with results varying from \$8 to \$14 per ton. The mine is in excellent condition at present, though not worked since the late heavy rains. Five tons of the rock as it came from the mine, were taken to Harris' Mill and worked; the result was \$11.50 per ton, and this result was obtained under circumstances that make it certain the rock was worth from \$1 to \$2 more per ton.

Another correspondent writes: Breckenridge Hill is turning out well, and it is reported that Mr. Grooms and company are doing very well. The winter has been so bad, in fact, that miners generally have done very little. The reports from the Sheep Ranch are favorable, but on account of the severity of the winter, very little prospecting has been done. McNair is putting up a double arastra, as fast as he can, and will, no doubt, be shelling out plenty of material for mint drops ere long. It is reported that Mr. Said has purchased the "Petticoat" claim, at Railroad Flat, for the sum of \$10,000.

Contra Costa County.

Gazette, March 5th: We have been shown a very handsome specimen of coal, taken out by Mr. John Taylor, eight feet below the outcrop, on a vein which has been distinctly traced for two miles in the vicinity where the Telegraph road crosses the San Pablo Creek. The vein, at the point from which the specimen was taken, is said to be four feet thick.

Lake County.

Grass Valley Union, March 4th: At the Wisconsin Hotel, in this place, we yesterday saw a specimen of cinnabar, which had just been received from Knoxville, in Lake County. This specimen shows richly in metal, and altogether is ahead of any we have yet seen from New Almaden. We understand that the mine from which the specimen we saw was taken, has been opened more than a year, and that a quantity of the ore is on the top of the ground.

Mariposa County.

Gazette, March 7th: Mr. Weher, proprietor of the Washington mine, near Hornitos, is now erecting a new 10-stamp mill. The chlorination process will be used to extract the gold from the sulphurets. This new process gives promise of obtaining good results from rock hitherto thought worthless. The Washington mine, has heretofore, under the management of Flint, Peabody & Co., paid well. The ore now being extracted is better than formerly—in addition to the old process the new one insures still larger profits.

Hite & Winants commenced work on Monday last on their ditch at Hite's Cove. This ditch is to convey water to their new mill, which they propose to erect when the weather opens sufficiently good to commence hauling,

Mail, March 7th: The Guadalupe quartz mill has been standing still for some two weeks past, partly on account of the fluming giving away, which has become rotten from old age, and partly on account of the bad condition of the weather, rendering it very disagreeable getting out and hauling rock. Mr. Hambleton, the proprietor, thinks he has struck the main lead in the mountain, which has been sought after for many years.

Nevada County.

Transcript, March 4th: Since last Saturday night it has rained almost incessantly, and yesterday at noon Deer Creek was almost as high as it has been during the season. It has continued warm during the storm, and the rain must have fallen a good part of the time almost to the summit. The present storm will benefit the miners if not followed by snow and cold weather.

Two companies are engaged in hydraulic mining at Gold Hill in this county, and they have a fine prospect. No work has been done in this vicinity since 1859, but Perry & Alban and Hazen & Co. have fitted up claims and commenced running a short time since. They now have abundance of water and a fine prospect to take out much gold.

March 5th: Dr. Farnham, who is opening the flat upon which Avery's old saw mill was located, has completed his tunnel and commenced washing the gravel. The claims are fitted up in first rate order, and the prospects are excellent.

The miners are doing first rate in the vicinity of Red Dog. Within the past ten days several new companies have started up, among them Duryea, at Buckeye Hill, and Hussey & King, at Red Dog. All these companies and others at work have a fair prospect for the season.

March 10th: The Italian Ledge, from which such splendid prospects were obtained so long as it was worked, has remained idle for a long time for want of funds. It is estimated that \$6,000 would be sufficient to open the ledge so as to obtain rock, and from the prospects obtained until the old company were compelled to stop work for want of machinery, there is every reason for believing that the mine would prove rich.

We understand that considerable damage was done to ditches by the late storm. A heavy snow slide occurred on the line of the Dutch Flat ditch last week, which broke and filled it up for some distance, cutting off the supply of water entirely. The ditch in the vicinity of the cascades on Deer Creek, was broken in several places, and it will require much expense and some little time to get it in order. We suppose that other ditches are much damaged above the snow line by slides.

Gazette, March 6th: The following companies started up their hydraulic claims at Scott's Flat on Tuesday last: The Beau Co., Creamer & Co., and the Hibbard Cut Co.; the latter being the property of the South Yuba Canal Co. These companies, as may be supposed, are having water in abundance, and such an amount of snow has fallen in the mountains that they are assured of a plentiful supply throughout the entire season. Mining prospects at Scott's Flat and vicinity were never better than at present.

March 9th: The complete hoisting machinery now on the Cunningham mine, consisting of engine, hoiler, pipes, tools, etc., is offered for sale.

Grass Valley National, March 7th: Some of our friends who have mining claims in the upper part of the county are making arrangements to proceed to their diggings forthwith. One thing they can be assured of, and that is a plentiful supply of water throughout the entire season.

March 9th: The Hope Gravel Co. are about commencing active operations. They have a cement mill already up, and new hoisting works; and in addition to the engine and the 8-inch pump already on the claims, they are adding an extra 12-inch engine and an additional 12-inch plunger pump.

Grass Valley Union, March 4th: While some of our citizens are looking after the wild cat land speculations, now so rife at the Bay, a capitalist from that excited quarter has quietly stepped into Grass Valley and bought up a large interest in the "Betsey" mine, and in the Orleans Mill property. Mr. Pearce, who is already an owner in the Empire, was the purchaser of the interests spoken of, and as a matter of course several thousand dollars changed hands in the transaction.

Placer County.

Dutch Flat Enquirer, March 7th: The miners at Gold Run are nearly all at work in their claims, having made satisfactory arrangements with the water companies in regard to the price of water.

Herald, March 7th: In the mine known as the Baker, or Harpending, the owners have struck as good pay as ever, on a level with the new mill, and are going to start the mill as soon as the weather will permit.

Sacramento County.

Folsom Telegraph, March 7th: For a number of months past, W. H. Knox and Charles Steele have been engaged in digging a ditch and building a flume, for the purpose of bringing water on several hills in the vicinity of the Western House, in this county. They have expended considerable capital and a large amount of labor, and now are taking out large quantities of gold. They have brought the water to higher elevations than ever before reached in that neighborhood, thus enabling them to open a new and extensive mining locality. They obtain their water from the main ditch of the South Fork Canal Co.

Shasta County.

Courier, Feb. 29th: McPherson & Co. will soon be ready to commence sluicing in their claim at Piety Hill. Their extensive flume is rapidly approaching completion.

Siskiyou County.

Yreka Union, Feb. 22d: A joint stock company has been formed by prominent citizens of Scott Valley, in the vicinity of Rough & Ready and Etna, for the purpose of mining the flat which lies along to the right of the road leading from Rough & Ready to Etna. This flat has been extensively prospected and is known to be rich. It is deep, however, to the bed rock, and the expense attending the opening of it so as to work it advantageously, will be considerable.

Tuolumne County.

Sonora Democrat, March 7th: Some two weeks ago, Mr. Thos. Mylar sent us a hottle of crystallized cinnabar from his mine near Horseshoe Bend. The mine is a valuable one, and has already yielded a large quantity of cinnabar, the greater part of which has been shipped to China, and the remainder sold in small quantities to the Celestials in neighboring towns.

We have seen some extraordinarily rich rock from the Arbona mine. Mr. Super-vielle has a candle-box full of it, and from its appearance one would have some difficulty in deciding whether to call it rock with a great deal of gold in, or gold with some rock in it.

P. B. Bacon has taken the old "Tennessee" quartz vein, above American Camp, and has crushed a small lot of rock which yielded 25 pounds of amalgam. Under the management of the former owners, rock from this vein didn't pay "salt." Bacon has quite a lot of rock out ready for crushing, and will continue getting out more till he has out enough to keep his 10-stamp mill running five or six weeks, when he anticipates a big "haul."

He is also owner of the famous Jones lead, near American Camp, and has a few hands at work getting out rock. One year ago Jones and his partner could have sold this vein for \$75,000 apiece. The two took out in a few months \$75,000.

From La Grange we have the following items: The claim of Mr. Thurstly, at the upper end of town, is paying well; after working through one channel in the flat, he came upon a high ledge, and on cutting through it struck another channel which promises to pay as well or better than the first. The claim of Richard Gannon & Co., on the same flat, is also paying large dividends.

There are several other claims in the immediate vicinity of the town which are also paying good wages.

On the north side of the river there are several companies at work whose claims have a good reputation.

All the work that is being done is with natural water; the dam of Reedy, Dye & Co. being washed out of the river last fall, leaves La Grangedry, except during a short period in the winter.

ARIZONA.

Miner, Feb. 15th: The news this week, from the mining districts adjacent to Prescott, is of the most encouraging character. In Big Bug district, the placer miners are making as high as \$10 per day to the hand. Work is being pushed forward on the Eugenie lode, with flattering prospects.

Two shafts on the Chase lode, in Haesayampa district, were several days ago down respectively 46 and 43 feet, and, at these depths, the lode was five ft. thick and the rock rich.

Joe Young called into our office yesterday and showed us the result of three tons of Chance ore, which he had worked in the Sterling mill, under very unfavorable circumstances. The three tons yielded 100 ozs. of nicely retorted gold and silver amalgam, worth, at least \$5 au oz. We are satisfied, from the color of the amalgam, which

is nearly yellow with gold, that it is worth several dollars more per ounce than the figure guessed by Mr. Young.

Yesterday, when Mr. Young left the Sterling mill, Mr. Reed was engaged in cleaning up, after having worked a quantity of Sterling rock. Reed was in fine spirits, and was satisfied that the rock would pay well.

County Treasurer Cory brings the following intelligence from Wickenburg. At Wickenburg everything looks prosperous and money was plenty. The Vulture Co's 10-stamp mill was running upon very rich rock. It was feared that in consequence of the muddy state of the road to the mine the teams would not be able to keep the mill supplied with quartz, and that in consequence, the mill would have to stop awhile.

Wickenburg's mill had started to work before Mr. Cory left. He adds his testimony that their rock is very rich. Fred. Henry, John Roundtree, and a German from Tucson, came up to Prescott with Mr. Cory. They found about 50 Mexicans placer mining at Weaver.

COLORADO.

Georgetown *Miner*, Feb. 20th: Mills & Bro. are working the Benton lode, on Brown Mountain. This lode was discovered about a year ago, and from what development it has received shows a vein second to none on that noted mountain.

We have seen some very fine galena and sulphuret ore from the Ethan Allen lode, situated on Douglas Mountain. This vein is now being actively worked, and shows at 15 ft. in depth, an ore vein two ft. in width.

Work has been resumed on the Henry Clay lode, on Saxon Mountain.

Work on the Munsell lode is progressing favorably, and the vein is increasing in width and richness.

We saw a silver brick at Clark & Co's bank day before yesterday which contained 349.50 ozs. It was the result of two tons of unselected ore from the Hise lode.

Central City *Register*, Feb. 20th: Errick Bottleson, of Ward, yesterday left us a sample of ore from the U. S. lode. The ore is mostly white, glassy-looking quartz, with decomposed zinc carrying a considerable amount of silver. He reports many lodes in that locality which are similar in character.

Denver *News*, Feb. 19th: We saw this morning, in Warren Hussey's bank, a splendid retort from the Briggs. It weighs 278 ozs., valued at \$6,300.

The largest bar of gold bullion ever made at the mint in this city, was run this morning. It weighs 270 ozs., and is worth \$6,400 in currency.

DACOTAH.

Virginia *Enterprise*, Feb. 29th: A letter from Cheyenne, received in this city yesterday, states that placer diggings, paying as high as an ounce per day, has been discovered west of the Sweetwater and about 35 miles from South Pass City. There is much excitement in Cheyenne about the new mines. There is sure to be a big rush of well armed and equipped miners to Sweetwater and vicinity this spring.

March 1st: Many persons in this city intend starting to the Sweetwater mines within the next six weeks or two months, and a party of eight men has been formed in Gold Hill to go to the same region as soon as the weather is considered to be sufficiently settled. We have the testimony of men who were in that region in 1852 that there are gravel banks on all the gulches that have the appearance of being rich in gold.

The Grass Valley *National* of March 6th, contains a letter written by E. T. Lake, from the Sweetwater mines, from which we extract the following: When we reached the mines there was no snow to be seen. There were about 150 men here at that time, about the 30th of September, but no houses, and every man with a fortune in prospective. The ledges are numerous and large and well defined—two in particular can be traced four miles. The gold is free, no sulphurets having as yet been found in the rock. For placer diggings there are five or six gulches found, and there is a ditch being brought into one of them $4\frac{1}{2}$ miles in length.

The Desert *News* says there are large numbers of men in Salt Lake City, en route on their way to the new mines, coming from the north and west, and thousands are expected in the spring and summer.

IDAHO.

The Rushville correspondent of the Lewiston *Journal* of Jan. 11th, says: Considerable work has been done on the ledges in this vicinity since my last. The Hic Jacet Co. have sunk their shaft upwards of 40 ft., and taken out several tons of ore. They will sink to the depth of 60 ft. and then drift each way from the shaft and stoop out the ore from above. The Sampson Co. have opened upon their lead and taken out sev-

eral tons of ore. The Spanish Co., upon the W. B. Knott lead have taken out about 25 tons of ore, one-third of which is very rich in gold. The vein at the point is fully 31 ft. wide. One claim west of this on the same lead, McDaniel & Co., have run an open cut and sheltered the same, and will sink upon the vein the coming week. Dan Dwight and Wm. Moore have run a tunnel and struck the Winfield Scott vein, and found the ore good. They will be able to take out about one ton of ore per day from the shaft they are to sink at the terminus of their tunnel.

Bacon & Tallis have opened at another point on the Scott, and will be able to extract a good quantity of rich ore.

Horton & Smith have opened No. 11 west on the Hic Jacet, and will be able to do good work in extracting ore.

Porter Bros. have also commenced operations on No. 4, east of the W. B. Knott. Another party is now negotiating for working upon No. 2, east of the Knott.

The Pioneer mill is running with good speed, notwithstanding the cold weather. It is crushing the Hic Jacet ore, and the prospect is fair for a yield per ton, equal to the Scott rock.

The Hic Jacet mill started their stamps last night, and with 40 lbs. of steam, gave 40 revolutions per minute, which gave to each stamp 80 drops per minute for the whole battery. They crushed 500 lbs. of Hic Jacet ore in 45 minutes. Everything moved to a charm. This was only done for a test. The mill will not be in readiness to crush regularly till about the 10th inst.

A new gold vein has been discovered about two miles south of Washington. It is called the Capital.

MONTANA.

Post, Feb. 22d: Bates & Trivits' 10-stamp mill, in Silver Star district, recently made their first clean up from 6½ days' run, and the retort amounted to \$7,500. The quartz yielded at the rate of \$140 to the ton.

Mr. Thomas panned out of 100 pounds of decomposed quartz, from the Granite Mountain lode, situated near the head of Tucker Gulch, \$27,000 in coarse gold. The quartz in this ledge is mixed with plumbago, and is said to be easy to be reduced and saved. At the depth of 70 feet, the lead shows a well-defined vein of ore three feet wide, nearly all of which is of uniform richness. Arrangements have been made for the erection of a substantial arrastra to commence operations in the spring.

Mr. Creigh deposited with Nowlan & Weary, on Monday, 56 ozs. of gold bullion, the product of the Union City mills, from Oro Cache rock. It is the result of what is equivalent to one day's run of the mill, from 20 tons of ore, and foots up \$1,260 in currency. The rock was taken from No. 2 north, at a depth of 160 feet, and averages \$50 per ton in coin.

The St. Louis & Montana Mining Co. at Philadelphia, are actively engaged in pushing forward work on their lead property, with indications that are in the highest degree flattering. Their mill has ere this started up again, and will be kept in permanent operation in the future, if no unfavorable accident should occur. The works of Messrs. Rumley & Co. are also in active operation, and a large return is confidently anticipated from their first clean up.

Cable City promises to equal if not exceed Phillipsburg, both in point of population and richness of the leads. Plaisted & Knowlan's mill is in successful operation, and running steadily on ore from the Atlantic Cable lode. It is the intention to clean up sometime during the week, when a large clunk of retort is counted upon.

Col. F. C. Deimling has let the contract for completing the tunnel to tap the John How lode, to Messrs. John Martin and John Carther. The tunnel is now in 253 feet, and it is estimated that in about 125 to 150 feet the lode will be reached. The work commences immediately.

From a private note received from a friend resident in Boulder Valley, we learn that the mines found here recently are fully as rich as represented.

The correspondent at Silver Bow writes as follows: At Butte City a large amount of work is being done on the ledges, in sinking and tunneling. The frame for the new mill is mostly completed, but the machinery is not expected to arrive before June next. We visited Yankee Doodle Gulch, a short time since, and were surprised to find so many persons wintering there. We had been led to suppose that gulch a balk, but with pleasure we learned that quite a number of claims had already paid over wages. We saw over \$20 washed out of the sluices for less than a day's work for two men. Messrs. Everest, Armstrong & Co. intend putting in a lengthy headrock flume in the spring. From Yankee Doodle we went to Black Tail Gulch; here all labor was sus-

pended. This little gulch will yield well the coming season. The water was conveyed into the gulch too late in the fall to accomplish much, yet some good pay was taken out. Next we visited Highland. Here we were most agreeably surprised. Where we expected to find little or no labor, on account of the depth of snow, we found all energy and enterprise. Seaves & Marshall were tunneling and getting out pay dirt; Overbay, Beck & Co. do as well as many others. In the way of quartz, wonders are being accomplished; Wilburn & Co. have nearly completed the tunnel to their ledge, just below town. This ledge is rich in copper for a depth of 60 ft., when the copper runs out and a fine quality of gold-bearing rock is found. On the Nevias Hill, all is life; a number of shafts are being sunk to a good depth, several already down 75 and 80 ft. The rock from the Noven, Only Chance and Gold Excel, will equal in richness any rock in the country. The Western Treasury, Burdon & Co's ledge, has a shaft 75 ft. deep, and is turning out good ore. Thompson, Johnson, & Myers, are running a tunnel to their silver ledge, to tap it 120 ft. deep. Flowers & Co. are putting a tunnel into the Only Chance. Berkrey is tunneling for the Nevias; McCord & Co. do. Florence & McCord have struck a ledge of very rich rock in their tunnels, about which there is a dispute. On the Ballarat Hill, quite as much life is manifest. The discoverers are running a tunnel to open their ledge about 200 feet deep; they are now in about 200 feet and expect to strike the ledge in April. Watson & Co. are in fine spirits. Todd & Co. are running a tunnel to open the Ballarat on the east line of No. 5, and the east line of the first extension. By these tunnels, the Tuleve, Ballarat, Bijou and Forest Queen, can all be worked. No less than nine tunnels are being run in this camp. En route for Silver Bow, I visited the Moose Creek silver lodes. Parties were at work on the Tiger lode, now presenting a crevice about seven feet wide, at a depth of about thirty feet. The ore looks of a fine quality. On the Parker lode they are down to a greater depth, with a splendid crevice and the finest walls ever seen. This ledge is rich in gold, as well as silver. By assay, it has been found to be well worth working for the gold alone, while it assays over \$900 per ton in silver. Dr. S. C. Day and Ben. Harvey have good ledges here.

NEVADA.

Esmeralda. Aurora *Union*, Feb. 29th: Toombs & Abrams at Pine Grove, are erecting another mill which will be running in a very short time. The Pioneer mill has just completed a run of near 600 tons from the Wheeler mine, which yielded over \$20,000, which the company intend to run into one brick, which will be the largest or most valuable one ever cast in Nevada.

Mr. Lytle, Supt. of the Oxford Beta Mining Co., several days since placed upon our table specimens of transparent mica or isinglass which he found in the seams of the bedrock while running a drift in the Oxford Beta claims. He says the seams are filled with mica and clay.

We are often at a loss what to say about our mines, not that we are ashamed of the products of them, but as soon as a mine is proved to be a paying one, it becomes a mystery, and the eager item hunter is told that from some misunderstanding in the company, fear of an interruption, and a thousand other trivial reasons they would rather have nothing said about their claim. During the past two years there have been many thousands of dollars worth of gold and silver extracted, which fact has been kept a profound secret.

Humboldt.

Unionville *Register*, Feb. 29th: Atchison made a short run at the Etma mill last week on ore from the Chloride ledge, with flattering results. When the Montezuma Works resume the operation of their smelting furnace, their mill will also be started for reducing the ore. The parties interested are satisfied they can select ore from this ledge to supply eight tons per day, which, in connection with the blast for the furnaces, will give full employment to the motive power of the works.

The refining works of the Montezuma, at Oreana, are turning out a little over \$4.00 per day in silver bullion, and everything is working finely, and the huge piles of crude bullion are rapidly disappearing.

Reese River.

We failed to receive any of our exchanges from Reese River during the past week, therefore our readers will have to wait until next week for news from that section.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, March 4th: The Gould &

Curry Co. are now taking out an average of 30 tons of ore per day. Nothing is being done upon the main shaft, but work will be resumed as soon as wood can be procured from Washoe City, which will be within the next six weeks—perhaps sooner.

March 10th: The Crown Point works started up four or five days since and are again hoisting a large amount of paying ore daily. The company's main shaft is now about 800 ft. deep.

During the past week there was shipped from Wells, Fargo & Co's office in this city and Gold Hill, 3,549 ozs. of assayed bullion, valued at \$98,948.53.

Yesterday morning, quite an extensive cave occurred at the old Yellow Jacket shaft. By the caving a cavity was formed at the shaft 40 or 50 ft. in circumference and about the same in depth. The cave does not at all damage the works, as all the paying ore had been extracted at this point.

A body of rich ore was struck on the lower level of the Savage mine yesterday morning. The deposit was found near the old Potosi chimney. It is reported to be rich, but as yet its extent has not been ascertained.

Gold Hill *News*, March 6th: A couple of fine looking bars of bullion from the famous Lady Bryan mine, Flowery district, are on exhibition to-day at the California Bank, Virginia. The largest of these bars weighs 1,288.30 ozs and is worth \$1,105.06; silver, \$1,625.70; gold, \$429.26; gold, .018 fine; silver, .976 fine. The second bar weighs 1,249.30 ozs. and is worth \$2,082.43; silver, \$1,576.49; gold, \$451.94; gold, .017.5 fine; silver, .976 fine. Weight of both bars, 2,537.60 ozs.; total value, \$4,133.49. The bullion was melted and assayed by Bousfield & Co., successors to Theall & Co.

OREGON.

Dalles *Mountaineer*, Jan. 4th: Capt. Coffin who has just returned from the Ruckle mill and mine, brings flattering reports as to their success, as well as of the mines on Burnt river, which he says will be very extensive; and when the ditch, now working is completed, will open a larger scope of valuable mining ground than the Boise Basin is said to cover. There has also been lately discovered valuable placer and quartz mines in the Pochontas range of mountains.

Jan. 11th: Good reports continue to be received from Willow Creek; new discoveries being made every day.

At Cañon City times are dull; everything is froze up, and the snow is about four in. deep.

Feb. 15th: On the resumption of steam communication between this city and Portland, we anticipate a large rush of people to the newly discovered mines in the John Day, Willow Creek and Crooked River mining districts.

Jacksonville *Sentinel*, Feb. 22d: Last week a miner on Cayote Creek, between here and Canyonville, found a nugget of gold in his claim, weighing a little over 16 ozs., and worth \$273.50.

WASHINGTON.

Olympia *Transcript*, Feb. 1st: It has always been believed by those best acquainted with mineral regions, that the western portion of our county known as the Black Hills abounds in mineral wealth. The aspect of the country shows this, and what little prospecting has been done has proven that there is more or less of the precious metals in most of the streams and gulches. No large deposits have been found, nor do we look for any until a thorough exploration of that region. Different kinds of mineral bearing rock have been picked up at different times. Last summer, a gray mineral bearing rock was found in several places which is believed to contain copper. Specimens of nearly pure copper were found in the streams to the west, heading in the Olympic range and emptying into the Chehalis, a few years ago. These streams are undoubtedly rich in other metals.

WYOMING.

The Frontier *Index* states that incredible deposits of gold and silver have just been discovered within 15 miles of Souders, in Wyoming Territory. An exploring party has brought in several specimens of gold, silver and copper quartz, which were thoroughly tested, and proved to be as rich as any discoveries ever made, either in Montana or California.

DODGING A THUNDER-STORM.—In England there is a system of switches employed on telegraphic lines, by which one wire can be put in communication with any other, in stead of the direct one. In this manner a thunder-storm which interferes with its working may be escaped, and a circuitous route, free from the passing storm, secured. Fogs are dodged in the same way, a divergence in the route of a hundred miles or so causing no appreciable loss of time.—*Exchange*.

Mining and Scientific Press.

W. B. EWER,.....SENIOR EDITOR.

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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. Hancey is our duly authorized agent for Sacramento County. Nov. 29, 1867.

Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, March 14, 1868.

Notices to Correspondents.

SYLVANUS.—The character of the soil has much to do with the kind of vegetation most congenial thereto. There are remarkable differences to all kinds of vegetables, trees by no means forming any exception to the general rule. That so congenial to the growth of the oak, is the soil of Herefordshire, in England, where these trees are called "the weeds of Herefordshire." As a further example, we quote, for the benefit of our correspondent and other readers, the following from the works of the late Prof. F. W. Johnson: "New Brunswick presents examples of the most striking and immediate dependence of agricultural value, upon geological structure alone. On the outskirts of the coal-field, and rising up from beneath its edges, appear red sandstones, and red conglomerates, associated with limestone, red marl, and gypsum. These give rise to soils of a remarkable fertile character, in the midst, generally, of scenery of a most picturesque description. In such localities, rock and soil so closely accompany each other, that the most skeptical is compelled to admit that the changes in forest trees, in character of soil, and in nature of rock, are at once simultaneous, and determined by a common cause."

A GARDENER, San Mateo.—The tenacity of vegetable life is sometimes extraordinary, even amongst many of our ordinarily cultivated vegetables. The common horse-radish must form a very familiar example. A gentleman informs us, that he has often seen this plant growing between the paving stones in the newer squares and streets of the "West End" of London, where it does not become destroyed until the traffic is very large. Most of this part of London is, and continues to be built on what were formerly market gardens. To the above, a very singular instance may be mentioned. An apple tree was uprooted in England in a storm, which occurred in 1812, while loaded with fruit; eight years afterwards it was still alive; it had formed a root at a knee of the stem on which it rested. It bore at the time named, four bushels of fruit, and although a sickly and over-run with moss, was in a way to recover from the accident.

KALZEDA, Silver City, Nev.—Quartz crystals occasionally occur of enormous size. A group in the Museum of the University at Naples, weighs nearly half a ton. A crystal belonging to Sig. Raffelli, of Milan, measures three feet and a quarter in length, and five and a half in circumference, and its weight is estimated at 870 lbs. About a century ago, a drusy cavity was opened at Zinken, which afforded 1,000 cwt. of rock crystals, which at that early period, realized by their sale more than \$300,000. One crystal weighed 800 lbs. A group from New Hampshire, now in Dartmouth College, weighs 147½ lbs.

A READER, Sacramento.—The case of the floods, alluded to in our last number, had no reference to the floods occurring during the previous week or ten days; but the former one, when sand-bags had to be employed in order to preserve your city from being inundated.

J. B., Placerville.—We have no recollection of having referred, in the Press, to the matter of which you write. We certainly have no knowledge of any special locality where the mineral to which you refer can be found.

EMILE HENKE, Montana.—Your inquiries of the 15th ultimo have been received, and will be attended to next week.

"Life."

This little word contains in itself a problem, the solution of which has baffled the utmost efforts of scientists and philosophers. Diverse well-turned phrases are the sole result of all the cogitations and experiments of those who have attempted to define it. Anatomical and physiological explorations throw no light upon the subject. The minutest microscopic inspection of the cell,—the simplest form of organization,—does not help the matter. The splendid advances in science which have been made by the enunciation and demonstration of the doctrines, that matter and force are indestructible,—and that the various forms of force are mutually convertible,—afford no aid toward the determination of the question. Intimately connected though this question is, with those relating to matter and force and organization, it nevertheless contains an element, of which, as science, they take no cognizance.

An attempt has been made to define the term life, by saying that it is the *germinal capacity of an organism*; an inherent capability of reproducing itself,—that condition which causes an organism to be developed into a similar organism and no other,—so far as regards its typical form;—and which preserves itself intact for a certain period, or through certain stages, even though subjected to constant change by the operation of chemical and physical forces which are antagonistic to it, and which tend to destroy it by the disintegration of its component inorganic parts. All this is undoubtedly true; but we get no nearer to the answer of the question by it. This circumlocution does not explain to us what the essence of life is; it is simply a substitution of one word for another. The word *organism* is no more definable than the word *life*. Nor is it by any means satisfactory to say, that the different forms of life are analogous to the different forms in which inorganic matter appears; and that this "germinal capacity" aforesaid,—this power of repeating its own type only,—is the analogue, in the organic world, to that essential difference in inorganic bodies, which constitutes the difference between any two of those substances which we call elements. To a certain extent, this also is true; nevertheless, we feel instinctively that the analogy is by no means complete.

Life, whether of plants or of animals, is indeed dependent, for actual visible results, upon the same physical and chemical agencies,—all based upon the heat derived from the sun,—which, in the inorganic world, are effecting incessant construction and dissolution. Animal life depends, for the material which in it is the subject of these agencies, and which must be constantly renewed for its maintenance, upon plant life; and that, in its turn, depends for its material upon those substances which it elaborates, by the aid of the same agencies, from inorganic matter. The crystallization of inorganic elements into symmetrical forms, also depends upon the same agencies. Disintegration goes on alike in both worlds. The component parts of plants and animals are constantly returning to the soil whence they came, as those of crystals so return, when broken up by the action of natural forces. But the existence of the crystal, as such, ends there; its elements may thenceforth form part and parcel of a hundred different substances; its identity, so to speak, ceases with its disintegration; while that of the organism remains intact, in the cell or in the seed, as the germ of another organism which will be precisely like its predecessor, and which only requires favorable conditions, to repeat itself *ad infinitum*. The grains of wheat, which for three thousands years had lain quiescent in an Egyptian tomb, and which were to all appearance as lifeless as the stones which for so many centuries had imprisoned them, found, when planted in the genial soil of France, the conditions necessary for their

development; and are to this day reproducing, year after year, the identical life of bygone ages.

This life of the organism, or "vital force," or whatever else it may be termed, cannot then be classed with the extraneous, or physical, forces. That "correlation" which exists between motion and heat,—or between any other two forms or modes of force, does not exist between this force and those. It is not, with those, mutually convertible, the one into the other. Like those, indeed, it is instrumental in building up a form from inorganic materials. But unlike them, its work cannot be imitated in the laboratory. As their creations give back to the soil their constituent materials, so the organism—either by constant egestion during growth, by gradual decay after maturity, or by combustion,—gives back to the inorganic world, in exact measure, the whole of the materials which have been used in its construction. While again, these forces, their work being done, are, like these materials, again merged in the never varying sum-total,—the organism gives back the exact amount of physical force—derived originally from the sun—which was expended in building it up. But it is *only* the physical force which is restored,—and *not* the vital. The latter has in fact subsidized the former for its own purposes; and having done with it, has dismissed it.

This force is not derived from the outside world; and so far as it is connected with that world, it may more properly be called a "directive agency." It may therefore, although indispensable to the physical building up of the organism, remain in all its original integrity after the destruction of that organism, without conflicting with the truth, that all the matter and all the forces employed in each building up, being indestructible, are wholly resolved into their elements, and are ready to perform again the same part in the building up of other organisms. This "Vitality," or "Life," is the only element which has not been changed in the operation; which cannot be weighed or measured; which is intangible, undemonstrable, *infinite*.

It is useless for us to attempt to refer the phenomena attendant upon life to chemical, or electrical, or thermal action;—or, as has been done more vaguely, to "the operation of natural causes." We instinctively feel that life is something else than these. As we have said, it cannot be produced in the laboratory. So far as we know, it has no other source than other life, of the same kind, which has previously existed. In this one point, it is essentially unlike any thing which results from the meeting of material particles, under any conceivable natural conditions. Even the lowest forms of life contain this element,—this something which eludes our grasp. If we are utterly at fault in our attempts to comprehend the *lowest*, how much more hopelessly do we undertake to refer the *highest* forms to the "operation of natural causes!" As we ascend in the scale, we find the organisms increasing in complexity,—showing a greater and greater number of different organs,—until at last we reach the crowning creation—MAN. This one only, among all, is self-conscious; this only has the faculty of looking in upon himself; of reasoning and reflecting in regard to the nature of his own being. This is the highest of his powers. Even if we could conceive of all life below this,—including that of the more brutish races of men,—as attributable either to a casual bringing together of particles of matter, under favorable physical and chemical conditions;—or, even if, going still farther, we should refer it to a certain "principle" inherent in nature, which can propagate itself, and which is superior to the material forces which are constantly tending to destroy it;—this one faculty of self-study would distinguish man as an exceptional being, and would place him at an

immeasurable height above all other organisms.

But further:—As this faculty is strengthened and refined by exercise, the organism in like manner becomes more and more fully developed towards its own perfection; and this introverted faculty, keeping pace with that development, begins to have more and more frequent glimpses of its own real nature. Being infinite in essence, it at last recognizes its own infinity; perceives that it has existed from all eternity,—although now for the first time, as a distinct and separate individual; and that, while it is an emanation from a Supreme Personality, it was necessary, in order to become a personality of its own free-will, that it should pass through the gradually ascending steps of development, from the lowest to the highest. Here now the individual has attained his most exalted stand-point. It is through his own consciousness that he has gained it; and only in that consciousness does it exist. He cannot demonstrate his position to another intelligence. That, in the very nature of the case, is impossible; for, so far as regards his relations with other personalities, he is still trammelled by the same material surroundings that obstruct *their* perception. For himself, he well knows where he stands;—but he cannot define his position to the satisfaction of another. The two worlds, the finite and the infinite, are seen by him with equal distinctness; yet between them is a chasm which he cannot bridge. Across this chasm, he can *fly*,—so to speak,—but he cannot *walk*.

Of course the discussion of this subject is necessarily *speculation*. But we have said enough to warrant the conclusion, that there can never be such a thing as *Scientific Psychology*; for psychology has to do with the innermost man,—and Science is *demonstrable* truth. *Scientific Intellectual Philosophy*, however, there may be; and that must be based upon *physiology*,—the science which treats of the organism and its development; upon which development the intellect, or the power of mastering demonstrated truth, depends. With some minds, intellectual philosophy, so based, is the only available stepping-stone towards psychology; other minds are so constituted, that they generalize instinctively,—seeing intuitively the harmonious relations that exist between organic and psychical life. Undoubtedly the psychical conditions under which organic life is transmitted by parents to offspring, have much to do with determining the capacity of such offspring for psychical progress.

No man who has for a moment conceived the idea of his own eternal personality, with all the dignity attendant thereupon, can envy one who looks upon himself as merely a final result of organic life,—and therefore, necessarily, as subject to the destruction, and,—as an individual,—the *annihilation*, which sooner or later, all organisms, as such, are destined to undergo. That a man should be willing thus to degrade himself into a mere *arrangement of particles*, simply because he cannot demonstrate a point which, if true, must of course be undemonstrable, is scarcely conceivable.

If, then, life is something which, although intimately associated with the material universe, is nevertheless not subject to the laws which govern that universe,—what is it? We answer, that we can only conclude that it is a direct emanation from an Infinite source; that this source of life is perpetually in action; that the inorganic world is subordinate to it, and fructified by it; and that organization, in all its forms, is the result of such fructification.

NATIVE INGENUITY.—Certain native artists firmly fix pearls for drilling in the following manner: They fit them loosely in holes bored in a piece of wood, and then by wetting the wood cause the fibers to swell. The gem is thus grasped tightly without sustaining any injury.

Editorial Correspondence.

BOSTON ELASTIC FABRIC COMPANY.

This is one of the most "attractive" manufacturing establishments in the vicinity of Boston. It is located on the Boston side of Chelsea. The works were commenced some four years since, and are now turning out a large amount of suspenders, garter webs, braids, cords, and numerous other goods of a character not to be excelled in Europe or America.

The building is a substantial structure 50x250 feet, four stories in height. On the basement floor is situated the engine, which is of 200-horse power and one of the finest in the State. All the steam required for present use is supplied by three 5-foot boilers. The furnaces are fed with hard coal dust and screenings, costing \$3 per ton.

THE CRUDE RUBBER.

On this floor also is the heavy machinery required in the first preparation of the india rubber. The crude article used comes mostly from Brazil, in bag-like shape. We are told that the natives form a ball of clay or earthy matter on the end of a stick and dip it into the gum, the liquid adhering to it forming a perfect coating. The stick is finally withdrawn, the clay pulverized and extracted, leaving an empty sack. The gum is an inch or so thick, black on the surface, the balance looking like old cheese, and smelling twice as bad.

ITS PRIMARY MANUFACTURE.

This raw stuff is cut into fine strips by a circular knife, then ground to the consistency of mince meat, and cleansed thoroughly in a large vat. It is then "masticated" into regh sheets about the size of a common door mat. In this condition it is hung upon poles in the drying-room, five or six months. For the next process it is passed repeatedly between a set of 12 or 14-inch iron rollers, kneading or compounding it. Sulphur, plaster, and Paris white are among the articles introduced in compounding the material for various purposes. From these rollers it is taken, one-fourth of an inch or less in thickness, and put through calenders, which bring it out into belts of the requisite fineness for manufacturing purposes. These sheets are reeled off upon portable drums, placed in a steam-tight chest and vulcanized to the requisite degree.

Mr. David Hull, superintendent of the machinery department, has just set in operation a new calender of his own invention, which proves a decided improvement over all other machines, producing a superior sheet of rubber, and greatly economizing time and power.

CUTTING THE STRANDS.

Pieces of rubber, forty yards long, are wound with exactness upon drums of six feet diameter, where, by means of a rotary cutter, moving with rigid accuracy, the whole is cut into strands of full length—forty yards. This cutting apparatus far excels any before used,—saving considerable in material, furnishing more even strands and greatly facilitating the process. Its accuracy may be judged from the fact, that sixty strands per inch can be cut for use in the manufacture of fine braids and cords.

The looms and braiding machines are situated in the second, third and fourth stories. The former weave suspender and other wide webs, and the latter produce the braids and narrower fabrics.

AN ESSENTIAL IMPROVEMENT.

In suspenders, from sixteen to thirty-two rubber strands are woven with the linen or cotton warp. European and American manufacturers have heretofore been troubled to obtain a uniform tension on the different rubber strands, an irregular tension causing the fabric to "pucker," or draw up, in places. By a simple device this difficulty has finally been overcome. Three small grooved rollers are employed, the elastic strands making one twist around each. The first roller takes up the strands naturally,

without strain; the second and third each draw a little tighter, retaining the correct feed as taken up by the first, and thereby securing and holding a perfectly even tension. The cutting apparatus and tension movement mentioned, were invented by Mayor Hull, of Charlestown, a stockholder, who has been largely interested in establishing and managing the works.

LOOMS AND BRAIDING MACHINES.

There are fifty looms, each weaving from sixteen to twenty webs, ten or twelve yards in length, per day. The braiding machines are constructed with from six to seventy-five (often fifty-one) upright spools, or bobbins, carrying different colored strands,—briskly waltzing, bobbing and "chassezing" in various directions, like mad automatic figures. About 450 of these chattering, rollicking "emblems of industry" may be seen at full speed in a single glance. The operatives employed are principally females. The braids manufactured are mostly for ladies' wear, and are remarkable for even texture, elegant colors, patterns and figures.

To secure perfectly reliable colors, the company have recently established a dyeing establishment. They also have a paper-binding and box establishment, and a large room for trimming, finishing and packing. Producing superior fabrics, they wisely determine to place their goods in uniform and attractive condition in the market, under their own supervision.

A NEW ARTICLE

of manufacture, in this country, will soon be undertaken at these works—an elastic carpeting, for halls, churches, counting-rooms, etc. It is said to be very desirable, ornamental and economical, from the fact that when worn the material can be cheaply wrought over.

A MODEL ENGINE HOUSE,

is that of the Howard Engine Co., Charlestown, Mass. Along one side of the basement story is extended a trough with steam pipe for heating the water for washing the hose. At the end is the high tower, in which the base is elevated by pulleys for draining and drying, in perpendicular position. The apparatus for accomplishing this, and also running the hose upon the carriage, is very complete and "handy." The basement also contains a steam boiler, for heating the entire building, and a furnace for cooking coffee, etc., for refreshments for the company on their return from their labors. In the second and third stories, are five or six fine rooms. The engine (a steamer) is larger and more ornamental than any we have seen in San Francisco. Several returned Californians belong to the department.

A NEW BRONZE METAL MANUFACTURE.

The Tucker Manufacturing Company, of Boston, are now turning out a large variety of bronze iron work, consisting of gas-fittings, clock-cases, and other ornamental wares, many of which are of new, elegant and elaborate design. Their workshops are in the State's Prison, Charlestown, employing over one hundred prisoners. Fine iron castings are first produced; these are partially finished by grinding and polishing a portion of the surface, according to the design. Each piece of casting is brushed with, or immersed in linseed oil, and haked in an air-tight oven. This simple process is repeated three times, when the castings come out perfectly bronzed on all polished surfaces. This is accomplished entirely by the use of linseed oil and heat. Five or six ovens of about five feet by seven feet front, are now employed. The castings are piled loosely upon frames resting on iron platform cars, which roll upon a track in and out of the ovens. The first coating is haked about twenty minutes, and the last ten minutes. The bronze surface is very perfect and handsome, contrasting well with the unfinished portions of the iron. It is durable and invulnerable against oxidation. The wares of this company are rapidly com-

ing into demand. It seems to answer full well all the purposes of a large proportion of bronzed articles, which have heretofore been manufactured almost exclusively in European countries. The process is secured by letters patent.

A. T. D.

THE ST. JOHN DEL REY MINES.—The Morro Velbo mine, Brazil, belonging to the St. John del Rey company, a mine which has been worked many years, and has been deemed "the most valuable gold mine in the world," is, it is feared, so far as the present workings are concerned, ruined. At the last accounts, it had been on fire for days; but it was believed that it had nearly burned itself out, and would soon admit of an examination into the extent of the damage. The fire was without doubt the work of an incendiary; it commenced at two different parts of the mine. The superintendent is spoken of as a very unpopular man, he having meddled in the commercial and political affairs of many of the tradesmen in the neighboring town. The mine was considered by the Cornish miners employed therein, as unsafe; now that the timbers must have been destroyed, it is probably much more so than before. Eighteen lives were lost; only one of which was that of an Englishman—the remainder being negroes. These particulars were communicated to the *London Mining Journal*, by a gentleman who was at the mine at the time of the fire, and had just reached London on January 12th. The directors inform the stockholders, by a circular, that it will be imprudent to open the mine for some days; and that meanwhile it is impossible to form any opinion as to the extent of the damage done.

SAFETY STOVE FOR RAILCARS.—Since the Angola disaster, an arrangement has been invented, which promises to prevent in future the fire at least, which formed the worst feature of that terrible affair. The stove is placed directly over a reservoir of water, and is connected with it by several large pipes. If the car should strike an obstruction, run off the track, or even drag sufficiently to cause it to lurch to one side or the other, the stove is at once flooded, through the pipes; and if it should turn over, the water, (about four barrels,) is emptied from the reservoir and extinguishes any burning coals which may be scattered in the car.

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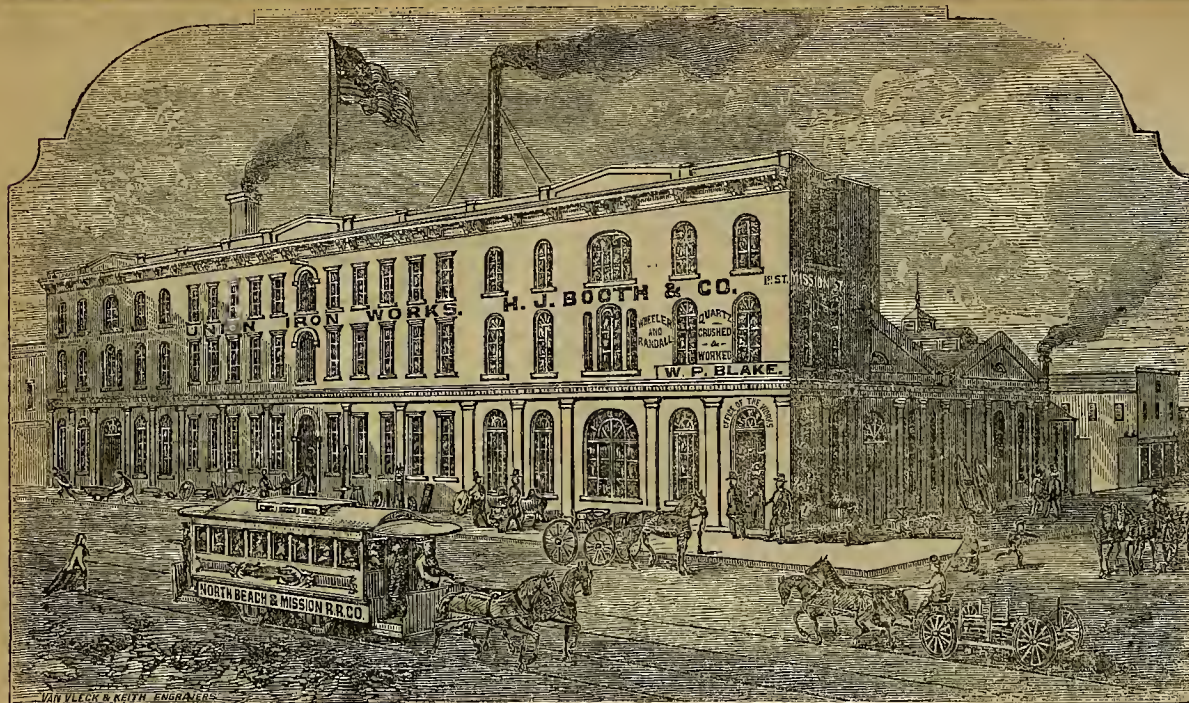
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BENDING OF MARBLE SLABS.—A slab of marble was recently removed from a Philadelphia graveyard, which attracted some notice. It is 6½ ft. in length, 3 ft. wide, and 2 inches thick. It has rested upon posts, like a table top, since it was placed over the grave in 1817. A straight-edge, laid diagonally across it, shows that it has bent down in the middle an inch and a half. Other cases, similar to this, have been remarked; and an argument has been drawn from them in favor of the supposition that the curves and folds in rocky strata, due to lateral pressure, were not necessarily produced while the rock was soft, but might be the gradual result of long continued force applied since they became hard.

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SPIEGELEISEN IN AMERICA.—The following is from a New York communication to the *American Journal of Mining*:

Spiegeleisen, or iron containing the proportion of manganese necessary in the process of making Bessemersteel, is now being imported from Germany, and is worth in this market \$53 gold per ton, the supply being limited. An article quite equal to that imported, is now being introduced in this market from Tennessee. The ore from which this metal is made is found in the Cumberland range, near Greenville, East Tennessee, not far from the Virginia and North Carolina line. The mountain that contains the ore is dome-shaped, and the ore is found at its very top in one vast deposit, requiring but little labor to extract it. Two men and a boy mine or quarry an average of twenty tons per day, besides doing the other work of the mine. The ore is a limonite or brown hematite, with a large admixture of manganese, and free from any contaminating impurities. Careful analyses have been made by Prof. Egleston and others, and it is found to be exceedingly pure, with a laminated or crystalline structure, presenting an appearance, in broken pig, like that of new silver. This appearance is caused by its mixture with manganese, of which it contains a large percentage.

PREPARED GLUE.—In order to have glue always ready for use, break up the glue and put it in a bottle; add to it common whisky; shake up; cork tight, and in three or four days it can be used. It requires no heating, will keep for almost any length of time, and is at all times ready to use, except in the coldest weather, when it will require warming. It must be kept tight, so that the whisky will not evaporate. The usual corks or stoppers should not be used; they will become clogged. A tinstopper, covering the bottle, but fitting as closely as possible, is better.

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The Eighth Wonder of the World!—A Puzzle for Geologists!

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[MAY, 1868.]

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Etc., On hand and Manufactured to order.

27 Goods shipped to all parts of the State. Orders respectfully solicited. 6v8 3m

Palmer's Patent**ARTIFICIAL LEG,**
Manufactured in Philadelphia, Penn.
JARVIS JEWETT, AGENT.

218 Montgomery Street, San Francisco. 10v8 1m

J. M. STOCKMAN,

Manufacturer of

PATTERNS AND MODELS,

(Over W. T. Oarratt's Brass Foundry.)

S. E. Corner of Mission and Fremont sts.,
6v14 1st SAN FRANCISCO

THEODORE KALLENBERG,**Machinist, Maker of Models for Inventors,**

Scales, Weights, Dies, Stamps, Drawing and Philosophical

Instruments, etc.

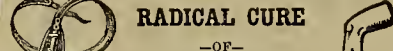
No. 10 Stevenson street, near First, San Francisco.

27 Repairing promptly attended to. 8v15 1st

**J. F. PAGES,****SEAL ENGRAVER.****AND LETTER CUTTER.**

Stamps, Seals, Steel Punches and Dies, Monograms, Notary

Seals, etc., 522 Montgomery street, San Francisco. 6v16

**RADICAL CURE**

—OF—

RUPTURE!

Treatment of all Deformities of the Body, by DR. A. FOLLEAU'S process. 624 Washington street, up stairs, Washington Baths Building, between Montgomery and Kearny streets.

DR. A. FOLLEAU

Has his studies and manufactories in the same building. Every kind of Apparatus, Trusses, Orthopedic Instruments, Artificial Limbs, etc., are manufactured and applied by himself.

27 He has no connection with any Agency. 2v14 1st 1st

Pacific Mail Steamship Co's**STEAMSHIPS FOR****NEW YORK, JAPAN AND CHINA.**

LEAVE WHARF, CORNER OF FIRST-AND
BRANNAN STREETS, at 11 o'clock A. M. of the
following dates, for PANAMA, connecting via Panama Rail-
road, with one of the Company's splendid steamers from
ASPINWALL for NEW YORK.

On the 10th, 18th and 30th of each month that has
30 days.

On the 10th, 18th and 30th of each month that has
31 days.

When the 10th, 18th and 30th fall on Sunday, they will
leave on Saturday preceding; when the 18th falls on Sun-
day, they will leave on Monday following.

Steamer leaving San Francisco on the 10th touches at
Manzanillo. All touch at Acapulco.

Departure of 18th or 19th connect with French Trans-
Atlantic Co.'s steamer for St. Nazaire, and English steamer
for South America.

Departure of 10th is expected to connect with English
steamer for Southampton and South America, and Australia,
and P. R. R. Co's steamer for Central America.

Through tickets can be obtained.

The following Steamships will be dispatched on dates as
given below:

March 10th—CONSTITUTION.....Capt. J. M. Canby

Connecting with HENRY CHANCEY, Capt. Gray.

March 18th—GOLDEN AGE.....Capt. E. S. Farnsworth,

Connecting with the RISING STAR, Capt. Conner.

March 30th—GOLDEN CITY.....Capt. W. F. Lapidge,

Connecting with ARIZONA, Capt. Maurv.

Cabin passengers berthed through. Baggage checked
through—no porters allowed each side.

An experienced Surgeon on board. Medicine and attend-
ance free.

These steamers will positively sail at 11 o'clock. Passen-
gers are requested to have their baggage on board before 10
o'clock.

Through Tickets for Liverpool by the Cunard, Inman and
National Steamship Lines, can be obtained at the office of
the P. M. S. Co., San Francisco, where may also be ob-
tained orders for passage from Liverpool or Southampton
to San Francisco, either via New York or St. Thomas—if
desired an amount of \$10 to \$20 will be advanced with the
above orders. Holders of orders will be required to iden-
tify themselves to the Agents in England.

For Merchandise and Freight for New York and way
ports, apply to Messrs. WELLS, FARGO & CO.

For passage and all other information, apply at the Pa-
cific Mail Steamship Co's office, corner of Sacramento and
Leidesdorff streets.

OLIVER ELDRIDGE, Agent.**"Best Best" Iron.**

Round,

Square,

Flat,

Assorted Sizes.

NELSON & DOBLE,

319 and 321 Pine Street, San Francisco.

9v16 1st

Mechanical Drawings.

Persons wishing Mechanical Drawings can obtain the
services of competent draughtsmen, by applying to this
office

MOSHEIMER'S**Pioneer Mining School.**

Office, 328 Montgomery Street,

SAN FRANCISCO.

MOSHEIMER'S**NEW ROASTING FURNACE.**

Patent applied for.

This Furnace has proven the most successful of any ever
built on this Coast. A great number are in use now, and
many in course of construction. Their superiority over all
other furnaces, is as follows:

1.—The cost of building is only \$300 for a one ton Fur-
nace.

2.—They require less than half a cord of wood per ton
of ore.

3.—The ore is roasted to a spongy condition; while in a
common Reverberatory it cakes into globules.

4.—It is a saving of 50 per cent. of labor over any Fur-
nace in use.

A full size working Furnace can be seen at my Metallur-
gic Works in this city, by applying at my office.

JOS. MOSHEIMER,

328 Montgomery street, San Francisco.

A Sulphuret Mine Wanted.

Any party having for sale a Mine, with Gold-bearing
Sulphurets, of not less than 16 per cent., and which pay at
least \$30 per ton, can find a purchaser by addressing, in
writing, particulars to

JOS. MOSHEIMER,

San Francisco.

INSTRUCTION

IN THE

Chlorination Process!

Parties wishing to learn the

Working of Sulphurets

BY THE

CHLORINATION PROCESS,

Can have an opportunity of doing so by applying to the
undersigned, who are prepared to give practical instruc-
tion at reasonable rates. Apply to

JOHN AGRELL,

Jackson, Amador Co., Cal.



**A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
NERVOUS
DISEASES.
Its Effects are
Magical.**

It is an UNFAILING REMEDY in all cases of Neuralgia
Facialis, often effecting a perfect cure in less than twenty-
four hours, from the use of no more than two or three
pills.

No other form of Neuralgia or Nervous Disease has failed
to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and gen-
eral nervous derangements,—of many years standing,—
affecting the entire system, its use for a few days, or a few
weeks at the utmost, always affords the most astonishing re-
lief, and very rarely fails to produce a complete and per-
manent cure.

It contains no drugs or other materials in the slightest de-
gree injurious, even to the most delicate system, and can
always be used with

PERFECT SAFETY.

It has long been in constant use by many of our most
EMINENT PHYSICIANS,

who give it their unanimous and unqualified approval.

Sent by mail on receipt of price, and postage.

One package.....	Price.	Postage.
Six packages.....	\$1 00	6 cents.
Twelve packages.....	5 00	27 "
	9 00	48 "

It is sold by all wholesale and retail dealers in drugs and
medicines throughout the United States, and by

TURNER & CO.,

Sole Proprietors,
120 Tremont street, Boston, Mass.

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY,
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

Pacific Iron Works,

San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

-BY-

WM. P. BLAKE,

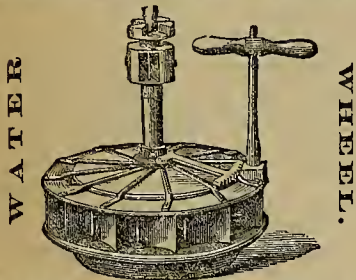
Corner First and Mission streets, or Box 2,077
San Francisco.

DR. BEERS' PATENT
WIRE GAUZE AMALGAMATOR.

THE ATTENTION OF QUARTZ, HYDRAULIC AND PLACER MINERS, is called to this new invention for saving Fine Gold. It is designed to furnish the miner with a cheap and simple apparatus by which the finest free gold can be saved without loss, requiring little attention, no machinery to drive it, and will positively collect every particle of amalgam, or of waste mercury that may have escaped from mill or sluice, and as these particles are always charged with more or less gold, this item alone, in many instances, will more than pay the cost of this Amalgamator every month. For Circulars, and further particulars, address

DR. J. B. BEERS, San Francisco,
Per Wells, Fargo & Co's Express.

11v15 6m

LEFFEL'S
American Double Turbine

THESE WHEELS, UNEQUALLED AND UNRIVALLED in the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery; Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REFERENCES.—E. Stooton, Folsom; O. Simmons, Oakland, (Mill at Clear Lake); Morganville, Lexington, Santa Clara County; J. Y. McMillan, Lexington, Santa Clara County. Send for Circular to

KNAPP & GRANT,

Agents for California,

25v13-1yq

310 Washington street, San Francisco

NOTICE TO MERCHANTS
AND
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; as goods require no slinging or lashing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a Friction pawl, stop, to holding machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,
By JOSEPH MOORE, President.

21v15 1f

HUNGERFORD'S
Improved Concentrators.

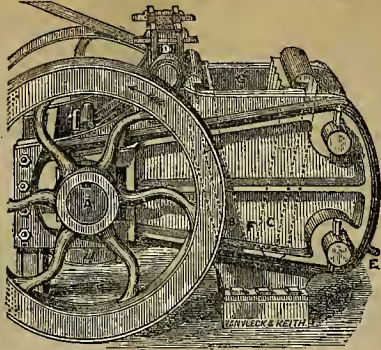
MR. HUNGERFORD, having been absent in the Interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombardi's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 1f

MORGAN HUNGERFORD.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.

The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600

No. 2.—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour.....850

No. 3.—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200

EXPLANATION OF THE ABOVE ENGRAVING.

The frame is made of cast iron, bound with heavy wrought-iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, L, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mono county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866.

JAMES BRODIE, Esq., San Francisco.—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,

Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL. This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and efficient mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry,
CHARLES RADCLIFF,
Express Building, 402 Montgomery street,
San Francisco.

12v13 1f

C. F. TRAVIS.

Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

PORTABLE

MILLS.

—

Agent for

Dufour & Co's

Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory.

C. F. TRAVIS,
109 Mission street, San Francisco.

5v16 1f

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF

an exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Eisen Bros., Pioneer Mills; Martin Stein, National Mills; Horace Davis, Selin Gate Mills; also, N. W. Spaulding, Saw Manufacturers.

PATTINSON'S
HURDY-GURDY WATER-WHEEL.

The inventor of this Wheel having, after much delay, finally obtained the patent for the same, is prepared to sell rights therefor to such as may be desirous of putting them up, or continuing those already in use. This is well known among millers as the "hurdy-gurdy wheel," and is considered the most economical Water-Wheel now in use.

Notice is hereby given, that the subscriber is the inventor and holds the patent right for the construction and use of the same; and that no person has a right to manufacture or use them without his permit.

7v15-4y

THOMAS PATTINSON

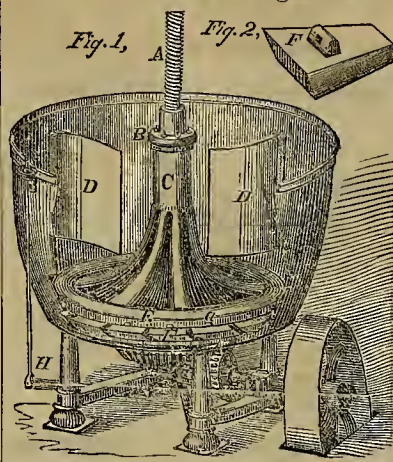
A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by

CHAS OTTO & CO.,
312 Bush street.

22v15 3m

STEWART'S
CELEBRATED HINGED
Grinder and Amalgamator.

The Cheapest and Quickest Pan now used.

It is flat-bottomed, loses far less power in throwing the pulp, and circulates the same under the muller to better advantage than any other Pan in use. While the steam, owing to the thinness of the cone, has a more direct effect of heating the pulp. E is the muller plate; F the Grinding Shoe, attached by an adjustable hinge joint in the middle in the same bottom wearing down even with the dies.

Mr. J. H. STEWART, the inventor, has had ten years of experience in mechanical operations, and may be addressed at San Francisco, or called on at the Miners' Foundry, First street, where his Pan is manufactured, and is to be seen at any time in operation.

14v15-1am 1f

Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thanks for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness.

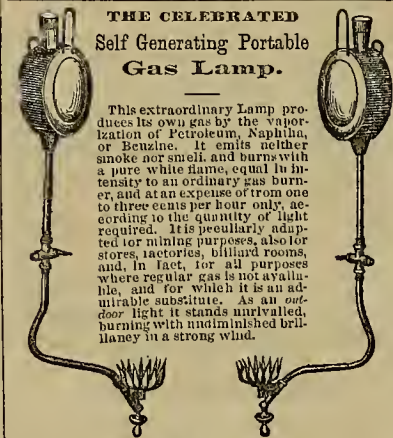
GEORGETOWN, January 22, '67.

MESSES. DEWEY & Co.—Sirs: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Grinding Ores."

It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf.

Very truly yours,

M. A. WOODSIDE.

THE CELEBRATED
Self Generating Portable
Gas Lamp.

This extraordinary Lamp produces its own gas by the vaporization of Petroleum, Naphtha, or Benzine. It emits neither smoke nor smell, and burns with a pure white flame, equal in intensity to an ordinary gas burner, and at an expense of from one to three cents per hour only, according to the quantity of light required. It is peculiarly adapted for mining purposes, also for stores, factories, billiard rooms, and, in fact, for all purposes where regular gas is not available, and for which it is an admirable substitute. As an outdoor light it stands unrivalled, burning with undiminished brilliancy in a strong wind.

Directions for Use.

Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn off the tap and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained till the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vise and the burner screwed off. The burnt cotton must then be withdrawn, and a fresh piece of stout cotton rag, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

Manufactured solely by JOHN J. HUCKS, original proprietor. Factory, North Beach, San Francisco; and for sale by his agents in every city and town throughout the State.

18v14-3m 8

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,

Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks,

Stone Cutters, Blacksmiths' and Horse-Shoers' Tools,

319 and 321 Pine Street,

Between Montgomery and Sansome, San Francisco.

14v14 1f

Steam Pumps,

FOR DRAINING MINES OR ELEVATING WATER TO ANY HEIGHT.

PICKERING'S GOVERNORS

For Steam Engines.

Giffard's Injectors,

For Feeding Boilers.

STODDART'S IRON WORKS,

Beale Street, San Francisco.

23v12 3m

A FULL ASSORTMENT OF

MOLDERS' TOOLS,

Constantly on hand and for sale at low prices, by

CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco.

22v15 3m

Boring Machines for Mining Purposes.

In a recent lecture at the English Royal School of Mines, Mr. Warrington Smyth mentioned two machines of the kind above named, which were already in use, and doing good service,—although some others had been failures, owing chiefly to their too complicated character. The first of these two machines was that of Mr. Döring, at Altenberg, near Aix-la-Chapelle; the second that of M. Bergström, a Swedish engineer at Persberg.

These machines were based principally upon the same idea. A small cylinder was placed in a convenient position opposite the spot to be bored, and then the horer, ending in the piston of a cylinder and brought to bear on the face of the rock, was made to strike with amazing rapidity, as many as 200 to 300 blows being given in one minute. As was the case with the ordinary boring tool, it was slightly turned before each blow was delivered. The power was acquired by compressed air, by which, at the same time, a jet of water was directed into the hole, and thus the sand and dust cut by the chisel were forced out. In this way, in moderately hard rock, 6 in. would be cut in six minutes—1 or 2 in. in the hardest granite. Mr. Döring had his machine at work last summer in London, and any one might have seen it at work on the surface of the dome. It was now working on hard dolomite. The kind of borer was that of the ordinary chisel, with the end formed like a reversed Z. One important point in respect to machines of this kind was, that although they might be everything that was required, so far as mere boring on the face of a working went, yet if they could not be easily moved, and still more, if they could not be used to bore holes, directed in any position, they would never be of any practical use in metallic mining. The apparatus of M. Döring, however, had this advantage, that it could be brought close to the spot required, and the cylinder could be moved up or down at pleasure. It stood on a solid platform, which, although required to be of a certain weight to keep it steady, moved upon wheels with readiness and ease in the levels and up to the work. A stout perpendicular column, so to speak, of iron stood in the middle of the platform; the cylinder with the cutting tool was attached by an arm to the column, and by a universal joint could be applied in any direction. The Persberg machine was similar, and it was now applied upon very hard granite rock. It was stated to have been at work two years, and to have driven several hundred feet in that time without any repairs of moment being required. It was remarkable, too, that the borers in these machines were not found to blunt anything like so soon as when the blows were given by the hammer, and thus they lasted five or six times as long. It would appear as though there was something in the rapidity with which the blow was given which preserved the edge of the tool. M. Bergström's machine was smaller than that of M. Döring, and only weighed about a hundred weight, which, of course, was an advantage in its practical application. It consisted of a cylinder of the same kind as that of M. Döring, attached to a long steel-pointed bar, which required to be fixed. That, however, was not a matter of moment, as the miners were so accustomed to fix struts and supports in their ordinary work that its fixing would take up but little more time than the removal of the other machines. The power in both cases was obtained from compressed air applied by means of flexible tubes.

The subject of boring machines is one of especial interest, and at this time is attracting unusual attention. We have conversed with an English gentleman at present in this city, who has a patent for a boring machine, which we hope soon to see introduced on this coast. Without doubt, the great labor-saving aid of such machinery, especially in sinking shafts, and in driving tunnels and drifts, will soon become general.

TERRIBLY HARD TIMES.—Over three millions of dollars was expended in New York city, during the past year, upon theatrical and other amusements. The Artisan gets these figures from the Internal Revenue office, and they must therefore be correct.

THE Union Coöperative Foundry, in Albany, N. Y., has declared a dividend of 80 per cent. among its members.

THE WAY IT IS DONE IN ENGLAND.—Under the head of "Projected New Companies," the London Mining Journal for January 18th, has the following:

Lincoln Gold Company, 160,000l., in 80,000 shares of 2l. each. The acquiring of the gold mines called the "Harpending and Quarry Gold Mines," situate in the township of Lincoln, Placer County, California, with the lands connected therewith; the acquiring of any adjoining concessions; the working and developing such mines; the preparation, manufacture, smelting, and sale of ore, metals, or minerals in any state, raised from such mines. The purchase of the business of, or the amalgamation with, any individual or individuals working mines or minerals in California, etc. The memorandum is signed by—Adolphus W. Young, 14 Pall Mall, gentleman, 1; Edwin W. Wingrove, South End House, Twickenham, gentleman, 1; William R. A. Boyle, 14 Old Square, Lincoln's Inn, barrister-at-law, 1; J. Walter Lukis, Woodlands, Isleworth, gentleman, 1; Alfred T. Thompson, 49, Gloucester-terrace, Hyde Park, London, 1; H. R. Treherne, 23 Clifton Villas, Maida-hill West, 1; The number of directors forming the board of management in England shall not at any time be less than five or more than nine. The subscribers to the memorandum of the association shall be the first directors. Qualification, 250 A shares in the capital of this company for his own sole use and benefit, upon which all calls shall then have been paid, and be resident in England. The residuats shall be entitled to receive amongst them out of the profits of the said company, and as part of the expenses of the management thereof, a sum equivalent to 100l. per annum for each director, and 200l. per annum for the Chairman; and, in case the dividends declared on the shares of the said company shall in any one year be not less than 30l. per cent. on the nominal amount of such shares, the directors shall be entitled to receive, as aforesaid, a sum equivalent to 150l. for each director, and a sum of 250l. for the Chairman for their services during such years; and in case the dividends in like manner declared shall in any year amount to, or exceed, 40l. per cent. on the nominal value of such shares, the directors shall be entitled to receive, as aforesaid, a sum equivalent to 200l. for each director, and a sum of 300l. for the Chairman, as a remuneration for their services during the last-mentioned years, and such sums so appropriated shall be divided amongst the directors and Chairman in such manner, and in such proportions, as the board shall from time to time determine.

[Since the above was in type, we have learned that this property was withdrawn, by telegram, before the date mentioned; the owners finding that the results of the working were not satisfactory.]—Eds. Press.

MORE RAILWAY CONVENIENCES.—Refreshment cars on the Chicago, Rock Island and Pacific road are to run in the middle of the train, with facility for free ingress or egress at either end; a dining counter extends along one side of the car, and passengers are served from a bill of fare, as they may order. In another portion of the apartment is the ladies' dining saloon, which is private and exclusive, while the car is so arranged that passengers passing in and out will not interfere with those dining.

Legitimate Photography OUR SPECIALTY.

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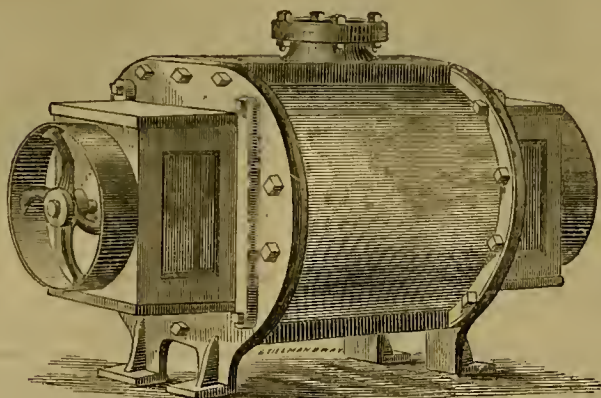
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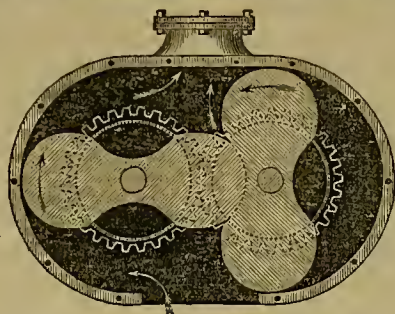
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NEW YORK METAL MARKET.—We learn from Winterhoff's Circular of Feb. 6th, that the New York Metal Market is still inactive.

COPPER advanced from 1½ to 2c during the first ten days in January. Baltimore sold at 23c, and Detroit at 23½ c. On the 5th and 6th of February 800,000 lbs. were bought on speculation, at the figures named. The stock is chiefly held in strong hands on speculation or for investment, mostly bought last summer, at rates higher than the present ruling prices. Low as the price is, it is thought a still further diminution will be shown during the year. A number of Lake Superior companies have stopped work.

The English market showed an improved feeling toward the close of January. The large production in Chili seems to have depressed the price on the Continent, which depression is not felt in the English market by reason of the favorable action of the English tariff.

TIN.—In the first week of January, 2,000 slabs Straits changed hands in New York at 24c. gold, part to arrive, and shortly afterwards 800 slabs in Boston at the same price. Since then, to Feb. 6th, no wholesale transactions had taken place, and the quotation of 24c. is quite nominal. Five hundred slabs Banca sold at 25½ and 26c. English is quoted 23 to 23½c. The English market declined to 87s. for Straits, under the expectation of large shipments of Straits Tin from Japan, but it seems questionable whether more than a few isolated shipments will be made from there either to England or the United States.

LEAD is quoted at from 6½ to 6¾c. gold for ordinary foreign. The importations for January amount to 1,700 tons, which went mostly into consumers' hand. The stock is unchanged from that of Jan. 1st.

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DISEASES OF THE EYE.—During a late visit to San Francisco, we tell in with an old acquaintance from this country, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cures of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

This above is clipped from the *Mountain Messenger*, of February, 1883. 10v16-3m

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SAN FRANCISCO, SATURDAY, MARCH 21, 1868.

VOLUME XVI.
Number 12.

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Payne & Stephens' Concentrator.

We give herewith an illustration of the new machine recently patented through the MINING AND SCIENTIFIC PRESS PATENT AGENCY, for concentrating gold or silver sulphurets. This machine, as will readily be perceived, is quite dissimilar in appearance and mode of operation from anything ever heretofore introduced on this coast. The principle employed is that of the bundle, which is extensively used in Europe. This principle was for many years operated altogether by hand; but machine bundles have now been long employed, and their mode of operation is explained and illustrated in Ure's Dictionary. The European machine, however, is quite imperfect and unsatisfactory when compared with the in-

thus spread out evenly over the floor, another set of arms D, D, are made to revolve, dragging after them small strips of cloth as shown, which produce just enough disturbance on the surface of the accumulating sands to prevent the formation of ridges in the descending water and sand, keeping the entire surface even, so that the lighter portions may be readily carried down by the water, while the heavier portions—sulphurets or any metallic particles—will, by their greater specific gravity, remain at or near the circumference. The pipe, I, is used to convey any additional water to the central reservoir that may be needed.

The chief improvement in this machine consists in elevating, by automatic action, a circular wall or ring around the central outlet, with more or less rapidity, according

constant operation at the Eureka (Watt's) mine in Grass Valley, where, we are assured, it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill near Virginia City.

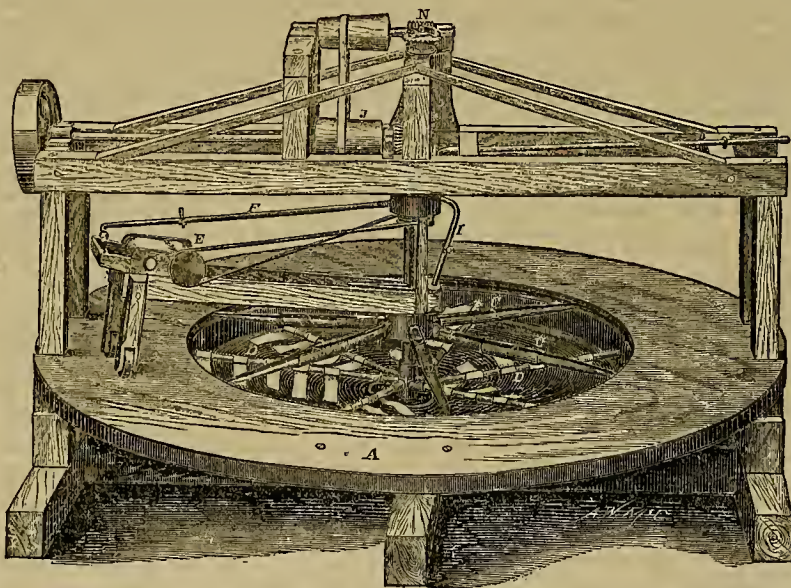
TURNING A MOVABLE WHEEL AROUND A FIXED WHEEL.—This discussion still exercises the readers of the *Scientific American*. That journal, in its issue of Feb. 29th, fills more than a page with letters on the subject, of which it says it has received about half a bushel. Several of them show that their writers totally misconceive the question. Our readers will remember the remarks which we made upon the subject in our last. They will also remember the questions which our correspondent, "Jeigh Arrh" quietly and pertinently propounded for the consideration of the *Scientific American* and its friends, viz:—"Does the moon revolve on its own axis? If it does,—how often?" We observe that the writer of one of the letters above mentioned makes the same point. He says:—"The problem referred to,—'How many revolutions, on its own axis, will a wheel make in rolling once around a fixed wheel of the same size?'—is merely another form of the old question,—'Does the moon turn on its own axis in revolving around the earth?' If the moon turn on its own axis, then the wheel makes two revolutions."

Now savans agree, that as the moon always presents the same side to the earth, it must turn on its axis in the same time in which it revolves around the earth. If, then, the wheel revolves once on its axis, when passed around the fixed wheel with a given point on its periphery constantly in contact with it, it must revolve twice when it is rolled around, and consequently presents all points. Nothing can be more evident.

We suspect that the *Scientific American* sees that it has made a mistake,—and yet puts far off the evil day of confession, by publishing these letters. Perhaps we shall be treated to the whole half-bushel,—before the "two-revolution philosophers" are admitted to be in the right.

THE STATE UNIVERSITY.—The Bill creating a State University and locating the same at Oakland, passed the House on Monday, and will undoubtedly receive like favorable action in the Senate, and receive the sanction of the Governor. The unanimity of feeling among the members of the Legislature, in reference to this matter, is most gratifying to the friends of education on the Pacific coast.

SPONGE MATTRESSES.—The material called "elastic sponge," is to be introduced in this city, for the filling of mattresses, cushions, etc. It is the least valuable of the sponges, and is found in abundance at the Bahamas. It is said to answer the purpose perfectly, and to be considerably cheaper than hair. An agency for the sale of it is to be established in this city.



PAYNE & STEPHENS' CONCENTRATOR.

vention of Messrs. Payne & Stephens, as herewith illustrated. But as the difference in their construction is of but little importance, we will proceed directly to the description of the one now in hand.

In looking at the illustration, the outer circle marked A, should be considered as constituting a part of the floor of the room where the machine is operated. The pulp is fed into the inner circle or depression below the floor, through a screen which is fed with the necessary quantity of water by the pipe F. E is an endless belt to which are attached brushes, which revolve within the screen for the purpose of breaking up lumps of sand which may have formed; the sand thence passes through the screen into the trough below, and is conducted to a central reservoir from which radiate hollow revolving arms, C, C, by which the pulp is delivered to the circumference of the central depression in the machine. The floor of this depression is inclined on all sides towards the center, at which is seen the opening for the discharge of waste. The pulp being

to the mass of sand which is put through the machine, or to the greater or less extent to which it is charged with sulphurets. In all machines heretofore used, this has been done, and of course very imperfectly and at great inconvenience, by hand. This automatic action is effected by a tangent-screw at N, working into a gear connected by a rod with the circular wall below. This motion is made more or less rapid by means of the conical pulleys, J.

The machine is exceedingly simple, is constructed of wood, with the exception of a few feet of gas pipe and seven or eight hundred pounds of castings. It can be built by any carpenter. One machine, costing about \$1,400, is sufficient to concentrate the sand from 25 to 30 stamps. But very little power is required, which is applied to the pulley shown at the upper left hand corner of the engraving. The machine can be readily operated by the power exerted by a single hand applied to a crank in place of the pulley.

One of these machines may be seen in

"DRY AS A DICTIONARY."—That phrase must pass away. Look into the elegant quarto edition of Webster's Unabridged; see the three thousand illustrations, handsomely engraved, interesting and instructive pictures. They are interspersed through the work in just the order in which you can most readily find them, with definition and description. Then, again, they are classified, convenient for comparison. The more important drawings are marked with letters or numbers of reference, by which you may learn the proper source of each portion. Take, for instance, the ship, the engine, the human skeleton,—and we find each piece and each part so plainly noted that a child may understand it, and name its proper term. But this is only one of a hundred or more improvements made in the recent edition, worth mentioning to our readers. No studious reader can afford to be without it, or will hesitate to buy it upon examination. Ignorance of its great merits and improvement over former editions, is the only reason that it is not already in the hands of thousands who, sooner or later, are bound to secure it.

STATE GEOLOGICAL SURVEY.—A last night's special dispatch to the *Bulletin*, announces that the Appropriation Bill was passed without striking out the provision for the Geological Survey. No sum, however, was specified for the carrying out of the work. Several motions to insert in the bill different amounts, were voted down.

CALIFORNIA MACHINERY FOR AUSTRALIA. The Union Foundry of this city has just shipped one of Hendy's concentrators to James Henty & Co., of Melbourne, Australia. Two of the same machines have also been shipped to the Washington Mills, Hornitos, Mariposa county.

CHANGE OF MINING OFFICE.—By reference to his card in another column, it will be seen that Mr. J. M. Buffington, mining Secretary, has changed his office from its long-time locality, in the Government Building, to Room 37, on the third floor of the New Merchants' Exchange.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

(Written for the Mining and Scientific Press.)

The Freiberg Barrel Process.

EDITORS PRESS:—I have a few remarks to make touching Professor Rowlandson's article on the above subject, which I read with the more interest from the fact that some years ago I had imbibed the usual Californian prejudice against barrels and in favor of pans—a predilection which subsequent experience with both has, in a very great measure, reversed.

It is to be regretted that the language of these articles is, in some parts, a little obscure, as their utility is thereby somewhat impaired; but as it is not my desire, any more than my business, to play the part of critic, I will simply call attention to a few points of practical interest, and, before closing, will give my reasons for the preference I have expressed.

I do not think it is fair to draw a comparison between the "Washoe Pan Process," as applied to crude ores, and the barrel or any other process applied to roasted ores. By roasting the Comstock ore, at least eighty per cent. of the contained silver can, I believe, be extracted with pans, and it is a question if more could be done with barrels; but it has been found, as regards the poorer class of ores, that the raw treatment leaves a larger margin of profit. I am informed that the rich ore is not, at present, worked without roasting.

"A less costly mode of procedure to attain the same object" (chlorination) is a desideratum which I concur with the Professor in deeming attainable, as well as improvements in the lining of barrels; for which latter purpose I suggest Raneom's artificial stone, or the recent patent process for hardening and preserving wood.

As to the duration of barrels, I think the term of twelve to sixteen months must refer to Brodie's patent, as I have known the common kind to be worn out in three months, and have not known them to last longer than nine months.

It is a question whether "the fact of gold existing in combination with Washoe silver ores" would not be an obstacle to the use of barrels, in connection with roasting, without subsequent grinding, either wet or dry, which would considerably enhance the cost.

It appears to me that Leca's "*beneficio de hierro*" could not be successful, because the metallic iron must prevent the effect of the magistral, by precipitating the copper from solution; and it is in this, the simplest way, that I account for the "non-success of Leca in introducing iron into the torta," while "the success of Gellert in introducing the same agent into the Freiberg barrel" is quite as easily understood, as in this case the chloride of silver was already formed; and the reduction of the salts of copper, not always or necessarily present, would be simply an inconvenience, which moreover could be avoided in barrels, though not in pans;—of which more anon. In the same way, in preference to the Professor's more complex view, I explain the non-effectiveness of chloride of copper when used in iron pans, the simple fact being that that salt cannot exist in an iron pan long enough to do its work on the ore.

What reason can the Professor give why this explanation is not sufficient without going further? His idea of the necessity of a preponderance of the chloride of copper will not stand the test of experiment, for however little there may be, it will act, on suitable ore, to some extent, more or less; and in the case which I have in my mind, would, if not decomposed by the iron, have been constantly reproduced. Neither will it do to say that the chloride of copper is

not decomposed by the iron, in consequence of the "peroxidation of the salts" of the latter, because the facts will not sustain that theory, as I have often observed in the working of pans. To this matter of peroxidation in a pan I shall allude again.

The fact is, there is no necessary connection between the barrel process and those of Leca and Barba; as in the former the interposition of roasting with salt effects a complete change in the conditions of the problem of amalgamation.

As to the action of chloride of copper on sulphide of silver, I am not sure that it is quite well understood. I have met with men, both theoretically and practically informed, who maintained that the generally accepted view of the reactions in the Patio process was not correct; and I have somewhere read of a certain Mr. Brown, in Brazil, I think, who looked upon an oxychloride of copper, formed by atmospheric action on the magistral, as the immediate means of decomposing the sulphide of silver. In Lower California, no magistral is used in the Patio; however, none but surface ore is thus treated there.

I have my own suspicions on this subject; but can only state as a fact that a solution of chloride of copper, hot or cold, has no action whatever on the crystallized sulphide of silver of the Silver Sprout mine in the Kearsarge district (which, however, may have contained a trace of lead); while on the dark pulverulent ore, containing carbonate of silver and sulphur, arsenic, lead, etc., it acts instantly, forming chloride of silver and oxide of copper, with copious evolution of carbonic acid; yet, however long it is left, or however the copper salt may predominate, there remain particles of sulphide of silver untouched. Whether sulphide of copper is formed or not, I have not ascertained.

This action of chloride of copper is the secret of the very successful working of the Kearsarge ore by J. B. Low last fall. The pulverized ore, mixed with chloride of copper (sulphate of copper and salt), was eteamed in wooden vats before being treated in pans. It gave nearly double the result attainable by treating the same ore directly in pans, with or without chloride of copper. Does not this prove my position with regard to chloride of copper in pans?

Similar means were used by me in treating the ton of silver Sprout ore, alluded to in a recent letter to the Press; but, as I used a barrel, the conversion and amalgamation were carried on simultaneously, with the further advantage of obtaining fine bullion. This brings me to the consideration of the matter already touched on, of preventing the copper in roasted ores from entering the amalgam, which, I have asserted, can be done in barrels, but not in pans.

Setting aside the use of copper in place of iron in barrels, as a means to this end, it can be effected in presence of iron by means of lime, ashes, etc., provided the amalgamation is not continued too long; for if it be, the copper finally passes into the amalgam, in consequence of a reaction between the chloride of iron produced by decomposition of chloride of silver and the precipitated oxide of copper, as pointed out by me in an article on the subject, published in the Press some time in March, 1865, and in the caption of which the printer, by omitting a note of interrogation after the words "a new reaction," exposed me to the charge of hastily assuming the credit of a discovery, when I only meant to ask a question.

At the time of writing that article, having had no experience with barrels, I had only pans in view; and the difference between them and barrels in this matter might be adduced in support of the Professor's opinion as to the peroxidation of the salts of iron in pans, as, although the protosalts of iron (and of zinc) will act on the oxides of copper, it is probable that the persalts act more rapidly. But I cannot think that the formation of persalts of iron can take place to any great extent in presence of so much metallic iron, not only in the bottom and sides of the pan, but also pervading the pulp in fine particles resulting from abrasion of the shoes and dies.

For this reason, as well as from observation, I doubt the formation of calomel in iron pans from the causes assigned by the Professor. I have known it to be produced on several occasions, both in pans and bar-

rels; but never in the former when a proper length of time was allowed to elapse before putting in the mercury, unless, in consequence of the subsequent addition of "chemicals," such as muriatic acid, or nitric acid and salt. Even in Knox's slow pans I have never known this phenomenon to occur spontaneously from the oxidizing effects of air; much less would it be likely in those of rapid motion.

I will not dispute the Professor's views as to the formation of double or compound chlorides of mercury and other metals, though I am inclined to think the presence of lead or copper in the mercury has a protective effect on the latter; but I have observed in cases of loss from the formation of calomel, that a large portion of that loss was due to that "extreme divisibility" of which the Professor's friend complained, and which is caused by the adherence to the surface of the particles of a film, or a coat of the calomel, or perhaps the multiple chloride above alluded to, which makes their agglomeration extremely difficult. The fine white powder obtained on "panning out" tailings containing such mercury, will, on rubbing, yield innumerable minute globules, which, by patient manipulation, may be induced to unite.

As to "preventives," they are simple and well known as regards pans and barrels. As a "cure," I have found exposure of the mass to the action of light, most efficacious; but that was before the introduction of eodiam-amalgam, which would probably be better.

The idea that barrels can only be used to advantage with roasted ores, is a mistake. On the contrary, I suspect that all ores which can be treated in the raw state at all, in pans, can also be so treated in barrels, and in many cases with much better results if finely pulverized previously.

My reasons for preferring barrels to pans, as a general rule, may in some measure be deduced from the preceding. They may be summed up thus: Barrels being charged but once, or at most twice in twenty-four hours, do not necessitate the constant presence of skilled operatives. After they are properly charged, it is sufficient to see that they are kept in motion till the time for preparing to discharge arrives. I have found that the changing of the motion from fast to slow may be dispensed with. With barrels, fewer temptations to or opportunities of peculation are offered to attendants. The chief operator is less dependent upon subordinates for the proper treatment of the ore, and he is enabled to conduct operations on a larger scale with more precision—this is a very great advantage in countries where skilled help is uncertain. By suitable management, fine amalgam can be obtained in barrels when it would be impossible in pans. I have known the difference to equal .940—450 in the fineness. Barrels, in working roasted ore, require no heating. (They may easily be arranged for heating when required.) Lastly, as to working ores without roasting, barrels admit of the application of chemical treatment which is inadmissible in (iron) pans.

As to the relative amount of power required, I have heard various opinions; my own, without being able to speak positively, is that the difference is not in favor of pans, especially those of rapid motion.

One great bugbear of the barrel process, is the grinding of the ore after roasting. On this point, I can say that my experiments, made unceasingly, during a period of three months, (a very short time, I admit), with pans alone, and other comparative experiments with pans and barrels on roasted ore of very refractory description, showed no advantage to be derived from fine grinding, provided only the larger and harder lumps formed in the furnace, were removed by sifting.

It is my opinion, that with roasted ores previously crushed through a sieve of forty holes to the linear inch, and sifted, after roasting, through one of eight or ten holes to the linear inch, no material advantage is gained by trituration greater than can be attained in barrels. When gold is present, however, it may be different; and in treating ore raw, it cannot be too fine.

Another prevalent error is, that dry crushing is necessarily very slow, and that it requires a special kind of mortar. Doubtless it can be done faster by a mortar discharging on two or four sides, than on one only; but that is also true of wet crushing, and a common wet crushing battery, discharging only in front, can, if of solid construction, be made to crush dry more than one ton per stamp in twenty-four hours through a screen of forty holes to the linear inch.

I intend to test the ores of this vicinity, as to their adaptability to the treatment by lixiviation, and will perhaps give you the result.

CHARLES H. AARON.

Lone Pine, Inyo Co., Jan. 23, 1868.

The Melones Tellurides.

NEW HAVEN, Conn., Feb. 15, 1868.

GUIDO KUSTEL, Esq.—Dear Sir:—I have been much interested in your notice of the silver-gold tellurides from the Melones mine, Carson Hill. I was not before aware of your description given in 1865; if I had been, I would have made reference to it in my catalogue of California minerals. You will observe that I there placed the mineral with doubt under *Tetradymite*, but stated that it had a tin-white color, and was not foliated, and that its specific character was undetermined. I then had but a small sample, and afterwards obtained more which was reserved for an analysis. I have now repeated some of your tests and find them very interesting, especially the experiment of heating a fragment of the silver-gold telluride on a coin, and thus causing the gold to exude from and coat the surface while at a temperature far below the melting point. This is one of the most interesting mineralogical phenomena I have ever seen, and is very suggestive metallurgically.

I am inclined, with you, to regard this as a new species, though its composition, as you have determined it, is nearly the same as *Petzite* from Nagay, Transylvania, analyzed by Petz. He found a little over eighteen per cent. of gold, and gives the gravity as 8.72 to 8.83.

The tin-white mineral which you refer to native tellurium, I find has a cubical cleavage and contains a notable quantity of a soft malleable metal which I suppose to be lead. Its physical characters are the same as in *Altaite*. The quantity which I have here is not sufficient to enable me to make an extended investigation. Yours very truly,

W. P. BLAKE.

The *Petzite* cited by Prof. Blake has the following composition:

Petzite.—Tellurium, 34.98; silver, 46.96; gold, 18.26; gr.=8.7-8.8.

Silver-Gold telluride from Melones.—Tellurium 35.40; silver, 40.60; gold, 24.80; gr.=9-9.4.

These two minerals are very near the same, only the amount of gold is considerably higher, and in consequence of this also the specific gravity.

I cannot now decide whether the white mineral which occurs in the ore of the Melones mine, and of which I had only a very small fragment, contained lead; or whether the lead reaction might not have been due to the small quantity operated upon; but since observing the above remark of Prof. Blake, that he found a notable quantity of a malleable metal therein, I have obtained as much of it as was necessary for a blow-pipe examination, and found the reaction, in all particulars, exactly like telluride of lead, which it doubtless is. The mineral is tin-white, with a greenish tint, and shows no trace of silver or gold. G. K.

LEGISLATIVE ANNUNCIATOR.—Dr. A. W. Hall, of New York city, has invented an apparatus for taking the votes in legislative bodies. It is fixed upon the clerk's desk, and from it a wire leads to the desk of each member. When the "yeas" are to vote, the clerks slip into the apparatus a piece of paper containing the names of the members in the proper order, and having the word "yea" printed at its head. Upon the calling of the vote, each member actuates his wire, and a puncture is thereby made at the end of his name. The "nays" are recorded in the same manner. Any number of slips may be placed in the box, and all punctured at the same time. Each of these is a complete record of the vote. The apparatus is all contained in a case about four feet long by one foot in width.

CARBOLIO ACID AND CREOSOTE.—H. Rust gives two methods of distinguishing these from each other. Collodion and carbolic acid when mixed form a gelatinous mass. True, creosote and collodion, on the contrary, form together a clear solution. Another test is a solution of perchloride of iron to which sufficient ammonia has been added to form a little permanent precipitate. Carbolic acid added to this mixture gives a blue or violet coloration; creosote gives a green color which turns to brown.

Mechanical.

CONDENSATION IN STEAM ENGINE CYLINDERS.—The *Engineer* has an article upon this subject, suggested by a patent suit in which the testimony given plainly showed the fact that a remarkable degree of ignorance existed, even among practical engineers, upon the subject. We condense from the article as follows: Those who have studied the subject of steam engine economy, with a knowledge of the phenomena of heat and its conversion into work, are aware that the theoretical advantages of expansion cannot be realized in practice because of the condensation which takes place within the cylinder. This is due to radiation from the external surface, convection into the condenser or the atmosphere through the exhaust, and what has been termed "internal work" done on the particles of water composing steam. In all cases the principal source of loss of heat is found in the frigorific influence of the condenser, and is in ordinary double-acting engines absolutely unavoidable. Careful experiments should have been long since conducted with a view to determine by practical trial what weight of water was actually condensed in the cylinder of any given engine. Strangely enough, however, no such inquiry has been carried out. Maximum economy cannot be reached until condensation is absolutely prevented in the cylinder or the jacket. We do not here allude to the condensation which is due to internal work, but to the condensation which results from the continued changes in the temperature of the cylinder itself. Whether a highly non-conducting material will ever be produced suitable for lining cylinders it is hard to say, but it cannot be doubted that the use of excessively thin steel cylinders, surrounded by a steam jacket or carefully clothed, would tend to economize fuel. A cylinder might be made of steel not more than one-sixteenth of an inch thick, fixed inside another of cast iron with a space of a couple of inches intervening, this annulus to be filled up with some non-conducting material forced in sufficiently hard to afford support to the inner cylinder. Paper would answer very well. The steel lining would only be required to provide for the wear of the piston. Those who have seen what paper becomes under a pressure of twenty or thirty tons per square inch, will understand how easily it could be used in this way.

HARDENING AND TEMPERING STEEL.—A New Jersey correspondent of the *Scientific American*, expresses decided doubts as to the assumed advantages of baths or pickles for hardening steel. He believes that oil for very light articles, and pure water for the heavier, are better than any pickle of salts, etc. Dies for a press, with a hole inside, should be hardened by two streams of water coming from opposite directions, and meeting in the hole. The journal concurs in this opinion, and says that a great deal of *bosh* is written and believed by mechanics upon the subject;—that verbal instructions in regard to hardening and tempering steel are of little use to the steel worker, but that experience and practice are absolutely necessary.

RECUITING FILES WITH ACIDS.—A recently patented process is as follows: "The files are cleansed with warm water containing a little potash, then washed and dried. A pint of warm water is now put into a wooden vessel, and in it as many files as the water will cover. Two ounces each, of pulverized blue vitriol, and borax, is now added, and the files turned over, so that both sides may be brought in contact with the mixture. Seven ounces of sulphuric acid, and one-fourth of an ounce of cider vinegar, are now put in. The files will become red, but after a short time will resume their natural color. They are then taken out, washed with cold water, and dried. After being sponged with olive oil, they are wrapped in porous brown paper, and laid aside for use."

STEAM PACKING.—J. A. Miller makes steam joints tight by placing a thin sheet of muslin between the flanges of the pipes which are previously painted. The muslin is a receptacle for the paint, holding it in place and preventing the steam from blowing it out, which is usually the case, when paint alone is used. The paint preserves the cloth and thus makes a permanent packing.

HAND TURNING TOOLS VS. FILE FINISHING.—We observe with regret that the use of hand turning tools for iron is being discarded by American mechanics, and that there are many machinists who know little of the use of such tools. For some time after the introduction of the slide-rest, hand turning tools were extensively used; but as the use of that attachment to the lathe extended, in like proportion did hand tools become excluded from the workshop. In trimming turned swells and beaded work, as on the heads of steam cylinders, and in finishing off rounds, corners, angles, and plane surfaces, no better instrument can be used than the diamond-pointed hand tool. To reduce metallic surfaces where but little material is to be removed, and also to finish the work of the slide-rest tool, the file presents the readiest means, as it requires no change of the parts of the lathe. As a consequence the file is often brought improperly into requisition. It is barbarous enough to finish counter-shafts with the file so that the pulleys can be placed upon them, but when it comes to finishing the journals of such shafting by that means, our indignation finds no words to vent itself.—*Artisan*.

IMPROVEMENT IN STEAM GENERATORS.—At the meeting of the Polytechnic Association of the American Institute, Jan. 30th, Dr. H. N. Barbour proposed a new plan for the construction of steam generators, based upon the fact that a flame will not pass through fine wire cloth, the heat being absorbed. If these wires were iron tubes, the heat would be as readily absorbed by them. His plan is then to place a large number of small tubes in a horizontal position immediately over the fire, and so near together that the heat will be absorbed, the same as in the wire gauze. One end of these tubes is bent so as to stand vertically, and these ends are inclosed in a drum in which steam is generated by the heat given off from the tubes, which are hermetically sealed and in close a small quantity of water. The maximum of the heated pipes is the temperature of the water in the drum. As condensation is more rapid than absorption of heat, a constant circulation is kept up in the tubes, and that temperature as given to the water in the drum is the most productive of steam generation.—*Artisan*.

CRANK-PIN JOURNALS.—There are two things required of a crank-pin journal, viz: the diameter necessary to secure the requisite strength, and a sufficient area of rubbing surface to prevent undue heating.

The proper area of the circular cross section of the journal of a crank-pin, to simply resist the force transmitted to it by the connecting-rod, can be found by dividing the total pressure on the piston by 2,500; and the diameter corresponding to this area will be that proper for the journal.

The remaining point is the area of rubbing surface necessary to prevent heating. The heat generated by friction has been experimentally determined by Joule to be equal to one thermal unit for every 772 foot-pounds expended in producing friction. In the case of a crank-pin journal, the number of foot-pounds expended in producing friction per minute is equal to the product of the number of revolutions per minute of the journal (one for every revolution of the engine) multiplied by the circumference of the journal in feet.—*Artisan*.

MAKING CHAINS WITHOUT WELDING.—A French patent has been taken out for the manufacture of chains without welding the links. Each link is made by punching a hole in a disc of iron, making a flat ring, which is then spun into a round one on rollers, arranged for the purpose. This ring is then drawn out into a long hoop, pressed together in the center, and doubled upon itself. The links thus formed are then interlocked. For cables, this invention seems especially adapted.

STEEL HOOPS.—Messrs. Taylor Brothers & Co., of Leeds (England), have just completed some very large cast steel hoops, which are ten feet six inches in diameter, six inches broad, and one and seven-eighths inch thick. These hoops have been made from solid cast steel ingots, which, after hammering, were rolled in a tire machine.

LOCOMOTIVE BOILER TUBES.—The composition of the material for locomotive tubes, where coal is used, is a matter of importance. Hitbeto it has been very various. Mr. George A. Everitt, of Birmingham, in a communication to the London *Artisan*, gives it as his opinion that the tubes should be of brass, of which seventy per cent. should be copper.

Scientific Miscellany.

Occlusion of Gases by Metals.

Mr. Graham has shown that the remarkable property observed by Deville, in platinum and iron, of permeability to hydrogen at a red heat, is possessed also by palladium, and that at a much lower temperature. At 265°, there is a steady passage of hydrogen into the interior of an exhausted tube of palladium, when surrounded by coal gas; the other constituents of the gas being excluded by the metal. This transmission is altogether different in character from transmission in general by transpiration; and is dependent upon some special relationship between the gas and the metal. It is preceded by an absorption or occlusion of the gas in the substance of the metal. Platinum wire, drawn from the fused and solidified metal, was heated to redness and allowed to cool slowly in an atmosphere of dry hydrogen gas. After cooling, and exposure for some time to the air, it was placed under a porcelain tube, which was then exhausted of air, and afterwards heated to redness. The iron gave off 21 per cent. of its volume of hydrogen. This was shown by experiments, not to be due to the extent of surface. Spongy platinum absorbed and delivered 148 per cent. of its volume; and a form intermediate in density,—ordinary wrought platinum,—gave 476 per cent.

Foil of wrought palladium, raised to the temperature of 245°, and then cooled slowly in a current of hydrogen, evolved, when afterwards heated *in vacuo*, 52,600 per cent. of the gas, a quantity equal to 526 times its volume. When kept at a temperature of between 90° and 97° for three hours, and cooled for an hour and a half, it absorbed 376 times its volume, provided it had been recently ignited *in vacuo*. These experiments show that palladium is altogether peculiar, in its relations to hydrogen.

Copper wire, thus treated, will absorb 30 per cent.; gold, in the form of assay cornettes, 48 per cent., together with some other gases. Silver wire absorbs oxygen in preference; taking up, at a red heat, 74 per cent. of that gas, and 21 per cent. of hydrogen. Iron specially absorbs carbonic oxide, taking up when in the form of wire, 415 per cent. of that gas, and 46 per cent. of hydrogen.

From the small volume occupied by these gases when thus occluded, it is probable that they are in a state of liquefaction, although among those which have never yet been liquefied by direct pressure; or, at any rate, that they are no longer in the gaseous state.

STEREOSCOPIC NOVELTY.—A "real image" stereoscope has been produced in Paris. In the ordinary stereoscope, the observer places his two eyes opposite two lenses, and sees the virtual image of two pictures apparently at the same place. In the "real image" stereoscope, the observer stands about two feet from the instrument and looks at a frame containing a single large lens. He then sees—just in front of the lens—a real and inverted image of each of the two pictures, the union of which forms the appearance of a solid figure or "ghost" in the air, between himself and the apparatus.

NEW METHOD OF REFINING ALLOYED GOLD.—F. B. Miller, an Australian assayer, has patented a process for this purpose. In his specification the patentee proposes the employment of chlorine gas or hydrochloric acid gas, applied in such manner that it shall rise up through the alloyed gold in a molten condition, by which means the chlorides of silver and of any other metals of baser order which may be present, will be formed and will rise to the surface of the melted mass, while the gold will remain beneath in a purified and tough condition.

SULPHUR.—By adding to pure sulphur a four-hundredth part of chlorine or iodine it becomes very soft, so that it may be spread in thin leaves as flexible as leaves of wax.

PRECIPITATION OF COPPER AND NICKEL

BY ALKALINE CARBONATES.—W. Gibbs, in a communication to the London *Artisan* on this subject, says that the precipitation of copper by zinc, or the electrolytic method, although suited to cases where the metal is present as a chloride or sulphate, does not succeed with the nitrate. He has found that copper may be completely precipitated by the alkaline carbonates from the nitrate, as well as the sulphate or chloride solution, if the solutions are boiled for a sufficient time, and are sufficiently dilute. The solution should be diluted with water until it contains not more than one gramme to the litre. A solution of carbonate of potash or soda is then added in small excess, and the whole boiled half an hour. The blue-green carbonate becomes dark brown, and is granular. After washing, it is ignited with great care, in an atmosphere of hydrogen, and the copper weighed. The small portion of the oxide or basic carbonate which adheres to the sides of the vessel in which the boiling is performed, is to be redissolved and precipitated; but care must be taken not to add a large excess of the alkaline carbonate. Nickel may be precipitated by the same process. Cobalt can be precipitated in this way only by long boiling. Both of these last may be precipitated from neutral solutions of their sulphates, nitrates, and chlorides, by adding first an excess of oxalic acid to the concentrated solution, and then a large excess of strong alcohol. This method fails when salts of ammonium, or of the alkaline metals are present. The oxides of copper, cadmium, zinc, manganese, and magnesium, are also completely precipitated from their sulphates by oxalic acid and alcohol, but not in the presence of alkaline salts. The same is true of both mercurous and mercuric nitrates. It will probably be best to determine the oxalic acid, in the oxalate, by hypermanganate of potash.

BROMO-IODIZED RUBBER.—Rubber and other gums may be hardened without sulphur, by combining them with a mixture of iodine and half its weight of bromine. Proto-bromide of iodine is formed. Rubber so prepared will harden on being subjected to a heat of 250 F. for an hour. The bromine and iodine are each previously treated with oil of turpentine mixed with one-fourth its weight of sulphuric acid,—on account of the volatile nature of proto-bromide of iodine. Three ounces of the pasty mixture is required for a pound of the gum. The process is patented.

PREVENTION OF DANGER FROM LEAD PIPE.—The action of distilled water upon lead is said by Böttger to be due to the presence of carbonate of ammonia. Distilled water, after active ebullition, will not attack the lead until after a considerable exposure, when a reabsorption of ammonia and carbonic acid, which are always present in the air, may be supposed to have taken place. When water is examined for its action on lead, Böttger points out that pure lead must be used, for the presence of a small amount of tin will prevent any action from taking place. This fact suggests the employment of lead alloyed with a small amount of tin for water-piping and cisterns.

ADULTERATION OF DYES.—A correspondent of *The London Chemical News* says that common salt holds a prominent place among the substances used to adulterate chemicals for dyeing. It is well known that to dye an even, fast and brilliant shade, the coloring matter must be held in a state of perfect solution,—or if insoluble, in the finest possible suspension, so that it may be slowly and gradually delivered to the fiber. Now the presence of salt impairs the balance between the solvent and the color, and causes the latter to be rapidly and irregularly deposited on the surface of the goods, in a dull state capable of easy removal. Ground turmeric is another article often mixed with salt, which imparts to it a brighter appearance in the state of powder; and the action of the salt in this case is very similar to what has been previously described.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand new and important inventions; also, the list of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

74,043.—SAFETY HOOK.—E. F. Brundate, Virginia City, Nev., assignor to himself, Wm. T. Eaves, and Wm. Eaves.

I claim the collar C, fitted on the swivel stem B, and provided with notches or recesses, *i k* in its under side, in combination with the hinged part *e* of the hook, and the projection *j* on the upper part *b* thereof, all arranged substantially as and for the purpose set forth.

74,073.—SEEDING MACHINE.—Olney Fry, Jr., Albany, Oregon.

I claim 1. The combination of the gear-wheel N, attached to the drive-wheel A, pinion-wheel M, shaft L, crank or crank wheel K, connecting-rod J, and lever I, with each other and with the seed-box E and adjustable sliding bar F, said seed-box and sliding bar being constructed and arranged substantially in the manner herein shown and described.

2. The combination and arrangement of the sliding bar P, connecting-rod R, and lever S, with each other and with the shaft L, substantially as herein shown and described, for the purpose of throwing the pinion-wheel M into and out of gear with the gear-wheel N.

3. The combination of the posts T, cross-hairs U, longitudinal bar V, beam W, plow-standards X, bar Y, and draught-bars or rods Z, with each other and with the frame D and tongue C, said parts being constructed and arranged substantially as herein shown and described, and for the purpose set forth.

4. The combination of the keeper C, lever A, spring E, and notched standard with each other and with the longitudinal bar V, substantially as herein shown and described, and for the purpose set forth.

74,281.—APPARATUS FOR WASHING GOLD ORE.—Seth L. Beckwith, San Francisco, Cal.

I claim 1. The device for imparting to the pans E F G the peculiar swinging motion used for separating metals when only mechanically mixed, by hanging them to rotating upright crank-shafts, in manner substantially as and for the purposes above set forth and described.

2. The pan E, provided with a double bottom, whereof the upper one is arched and perforated, and the lower funnel shaped in manner substantially as above set forth and described.

2. The pan F, divided into chambers, substantially as above described, the walls whereof are crowned by overhanging ridges, *b*, in manner substantially as above set forth and described.

74,547.—IMPROVEMENT IN THE CONSTRUCTION OF SEA WALLS.—John Kelly, San Francisco, Cal.

I claim the strips or lead A C, when placed between the joints of blocks of masonry, substantially as and for the purposes herein specified.

This invention relates to an alleged improvement in the building of sea walls, so that the action of water against them will not wash out the mortar or cement from the seams or crevices between the blocks of masonry. It consists in placing strips of lead between the blocks; but only along the outer edges, as the walls are built up. Back of these strips the mortar or concrete is filled in as usual—the lead in front acting as a shield to protect the mortar from being worn away by the action of the water. A common method heretofore adopted has been a placing in front of the mortar strips of cloth dipped in asphaltum. This device has been found ineffectual, as the continual action of the water soon wears away the protecting medium, after which the more yielding mortar in cement begins to yield to the same face of the wall. This invention, it is thought, will be especially serviceable in the construction of the walls of stone dry docks and other walls where it is desirable to prevent leakage.

74,562.—NEWSPAPER FILES.—Louis P. McCarty, San Francisco, Cal.

I claim a newspaper file, constructed substantially as and for the purpose herein described.

The object of the invention is to construct a cheap, durable and ready file for preserving newspapers in their chronological order, which is effected by bending a wire upon itself so as to form two parallel sides, between which the papers are laid and secured, the file being clasped at one end, and having the other coiled so as to form a

spring for opening it. For ready reference, a hook may be placed in the wall above the desk, and the ring of the file be placed over it, while a piece of elastic cord may be fastened to the desk, and hooked into the coils, thus extending the file at an incline in front of the person at the desk, when the whole file may be readily run over without trouble or delay.

73,599.—IMPROVEMENTS IN BOOTS AND SHOES.—Evan T. Rogers, San Francisco, Cal.

I claim making the ridges on the markers by casting them in one piece with the plate, substantially as described.

The nature of this invention is to provide an instrument for marking the counters and straps to boots and shoes, so as to enable the sewer to follow the marks; and consists of a piece of metal, of the desired size, having ridges upon its face of the desired angles.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, March 16, 1868.

President Whitney in the chair. The President read a communication from J. W. Foster, of Chicago, giving an interesting account of a stone implement received there recently from California. The material is syenite, very much like the Quincy granite, symmetrical in shape, not quite circular on the cross section, ground and polished so as to exhibit in marked contrast the pure white of the feldspar and the deep green or black of the hornblende. The blunt end is pierced with a hole, whose outer edges are rimmed out, so that it looks very much like a plummet. It was found in digging a well, thirty feet below the surface, on or near the premises of Lafayette Nealy, in the town of Woodbridge, San Joaquin County, about eleven miles from Stockton.

After the reading of this communication, which was accompanied by a drawing of the object, considerable discussion ensued relative to similar objects known to have been found in this State, and to the habits of the Digger tribes, who seem to have advanced no farther than the stone age.

In connection with inquiries on the early records of the human race in this State, Professor Whitney stated that he was preparing a paper giving new light on the famous Calaveras skull. He also exhibited a fossil sent to the Geological Survey by Roger S. Day, a rare species of ammonite, apparently, found in a hill-top in the mines seven miles east of Folsom, and interesting for the additional evidence it presents of the secondary age of the California gold formation.

Dr. Kellogg exhibited specimens of several rare plants found in this vicinity, including a peculiar lilaceous plant.

Dr. Bolander presented to the Academy a large collection of ferns and grasses, including all the California species, about 114 in number. Dr. Kellogg stated this collection could not be gathered *de novo* for less than \$2,000. The thanks of the Academy were voted to the donor, and a subscription of \$40 or \$50 taken up to procure a case for its proper care and disposal.

Acknowledgements of the receipt of the Academy's *Memoirs* were received from the Smithsonian Institute and other scientific sources, and the letters contained high praises of the matter and typographical execution of the *Memoirs*.

A long, rambling discussion on hotanical subjects closed the session. Dr. Bolander, on a hint from Mr. Bloomer, suggested the making of a catalogue of all introduced plants about San Francisco, both for its interest as showing the character of our climate and for its future historical value. He had observed that all the plants which have naturalized themselves in California are of Mediterranean origin. Dr. Kellogg here spoke of the ready adaptability of our soil and climate to Mediterranean products, owing to similarity in native conditions. Dr. Gibbons commented on the favorableness of our dry soil and climate to the preservation of seeds and continuous propagation of plants. Dr. Bolander, in reply to Dr. Cooper, stated the mode of determining if plants are introduced or native by a reference to the harmonious relations of botanical divisions. There was also some talk on the old theory of spontaneous production, which was maintained stoutly by Mr. Bloomer, who incidentally threw out the idea that Darwin had clouded the question of the origin of species by confounding species with individuals.

By common consent of the Academy, the Council will make arrangements for an early field meeting to investigate some of the shell mounds in this vicinity for Indian relics.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING, }
March 21, 1868.
CITY STOCKS.

The open market is almost bare of transactions, and the amount changing hands privately is very much restricted. San Francisco Gas stock sold uniformly during the week at \$70. State Telegraph again made its appearance, selling at \$30. San Francisco Insurance stock may be had at par. At the annual meeting of this company, held on the 17th inst., the old officers were re-elected—Geo. C. Boardman, President, and P. McShane, Secretary.

The stockholders of the Spring Valley Water Company, at a meeting held on the 18th inst., decided to increase their capital stock from \$6,000,000 to \$8,000,000, the same to be ratified by two-thirds of the stock, which has been done. The distribution of the new stock—20,000 shares—will be made upon the basis of \$58 per share, which will entitle each stockholder to one share for every three now held. It is proposed to call in the additional stock as follows: 40 per cent., or \$23 20 cash, 30 per cent., or \$17 40, in sixty days, and 30 per cent., or \$17 40, in six months. Early in the week, a few sales of this stock were made at \$60; at the close held higher.

The receipts of the local insurance companies during the months of January and February, 1868, according to the returns made to the Internal Revenue Department, have been as follows:

	January.	Feb'y.	Total.
Pacific.....	\$65,439	\$43,423	\$108,862
Union.....	30,239	40,452	70,691
National.....	33,044	31,558	64,602
Fireman's Fund.....	18,052	16,424	34,476
Builders'.....	17,533	17,791	35,324
California.....	11,156	11,234	22,390
Merchants' Mutual Marine.....	11,351	10,640	21,991
Occidental.....	9,209	4,524	13,733
Home Mutual.....	8,306	7,250	15,556
San Francisco.....	4,021	4,003	8,114
Peoples.....	8,769	5,326	12,895

Total.....\$213,171 \$219,615 \$432,786

The returns were made upon a legal tender basis, the rate—72 cents for January, and 71 cents for February—being fixed every month by the Assessor of the district.

The above statement shows a gain over the receipts in January of \$6,444. The receipts of the several companies in February, as compared with January, show the following difference:

	Increase.	Decrease.
Pacific.....	\$20,213	\$2,016
Union.....	\$10,213	.....
National.....	1,514	1,615
Fireman's Fund.....	248	.....
Builders'.....	78	.....
California.....	4,689	.....
Merchants' Mutual Marine.....	4,524	.....
Home Mutual.....	72	4,913
San Francisco.....	.....	.....
Peoples.....	.....	.....

The receipts of the city railroads for the months of January and February, 1868, have been as follows:

	Jan'y.	Feb'y.	Total.
Omnibus.....	\$2,654	\$1,951	\$4,605
North Beach & Mission.....	19,575	19,763	39,338
Central.....	11,820	12,340	24,160
Front Street, Mission & Ocean.....	7,086	7,241	14,327
Market Street.....	5,400	6,127	11,527
Potrero and Bay View.....	986	1,616	2,602

Total.....\$37,601 \$39,038 \$76,639
An assessment of \$5 per share was levied on the capital stock of the Potrero and Bay View Railroad on the 16th instant.

We notice that savings and loan institutions are being established at many of the more important interior towns. The one recently incorporated at San José will probably go into operation on the 24th inst. The existence of these places of deposit is in itself the guaranty that the people have something more than their daily needs call for, and that they exhibit both thrift and economy. At Stockton, articles incorporated the San Joaquin Valley Bank, were filed in the office of the County Court of that county a week ago. The capital stock is to consist of \$200,000, with the right to increase it to \$500,000, and is now divided into 2,000 shares at \$100 each. Its term of existence is limited to fifty years. The institution will be managed by nine trustees, for the first three months of its existence. For this purpose the following Directors were chosen, viz: G. B. Claiborne, B. W. Bours, James A. Crow, R. C. Sargent, Henry S. Austin, H. O. Mathews, George Gray, Anstin Sperry and John C. White. The principal place of business of the company is the city of Stockton.

Mining Share Market.

The mining share market has obtained an activity and advance little thought of by the best informed but a short time since. This is more particularly true of the Gold Hill mines, embracing the ground covered by Crown Point, Kentuck and Yellow Jacket companies, and should the ground north of this locality, through the Imperial-Empire shaft, give promises of fair discoveries, that locality will reach greatly enhanced prices, and also tend to appreciate claims still further north.

Intelligence from the mining region is very meagre, and unsatisfactory, because of the difficulties in the way of communication. Our roads still remain almost impassable, requiring the expenditure of much time and labor to pass from

one point to another. The values of stocks are always subject to greater changes when communication between the places of their existence and the place of purchase and sale is difficult and occasional; and are always more steady and reliable when such communication is regular and uninterrupted. Were it not for the telegraph the money dealers of this coast would scarcely undertake to venture largely on the fluctuations of the stock and gold market, and a business amounting to many millions a year would have remained a sealed book to our brokers.

The time of holding the annual meetings of the various mining companies have considerable influence in stock operations, and we have, herewith tabulated the dates, so far as at present ascertained, for general reference:

Gold Hill Quartz M. & M. Co.....	Second Monday in January
Sierra Nevada.....	Second Monday in January
Amador (Cal.).....	Third Monday in January
Danoy.....	First Monday in March
Hale & Norcross.....	Second Wednesday in March
Crown Point.....	First Monday in June
Imperial.....	Last Tuesday in June
Chollar-Potosi.....	Second Monday in July
Overman.....	Fourth Tuesday in November
Yellow Jacket.....	Third Monday in July
Savage.....	Third Thursday in July
Segregated Belcher.....	First Tuesday in October
Empire.....	Second Monday in October
Exoholquer.....	Third Tuesday in October
Confidenco.....	Second Friday in November
Kentuck.....	Fourth Wednesday in November
Ophir.....	Third Wednesday in December
Gould & Curry.....	Fourth Monday in December

CROWN POINT—experienced a very marked advance during the period under review, rising from \$1,740 to \$2,500, and closing at \$2,360.

A telegraphic dispatch of the 20th, states that they have found six feet of \$36 ore on the 800 level, and that the winze from the 700 level is down forty-eight feet, looking as well as reported.

IMPERIAL—has been in fair request, advancing from \$260 to \$272 50, and closing yesterday at \$267 50. The receipts of bullion for March account are reported at \$23,577 27. About 80 tons of ore is the daily product of the mines. The 371 level continues to look well, and the "west body" is said to show no change. In the lower drift from the shaft they have made considerable progress, and the first set of timbers, five feet from the shaft, have been placed.

KENTUCK—was largely dealt in toward the close, having rapidly advanced from \$287 50 to \$410, and closed at \$420. The receipts for February account foot up \$54,174 75, and it is thought will reach \$70,000. The 500 and 700 levels continue to look well.

YELLOW JACKET—has been in moderate request, steadily rising from \$1,150 to \$1,440, falling to \$1,365, then selling at \$1,550, and at the close realizing \$1,490. It is reported that quartz has been obtained in driving toward the 700 level of the Kentuck company, containing good pay ore.

CHOLLAR-POTOSI—opened at \$230, receded to \$224, rose to \$275, and closed at \$269. During the week ending March 12th the ore product amounted to 219½ tons against 170 tons the previous week. The north end of the old Santa Fé level yielded a few tons of good ore, and the south drift on the Blno Wing station shows a change in the color of the quartz, but not in value.

OVERMAN—declined from \$180 to \$170, rose to \$182 50, and closed at \$178. Since our last issue \$14,517 62 in bullion have been received. Some of the ore recently reduced was of December product.

ALPHA—rose to \$1,540; but was recently consolidated with the Treglone company, consisting of 6,000 shares, at a par value of \$250 per share, equal to \$1,500,000 of capital stock, and at the close sold at \$78 ¾ sh. Thomas Bell, Wm. M. Lent, Thos. Sunderland, Wm. Sharon and Louis Gerstel are the Directors. The office is located at 705 Montgomery street.

AMADOR—at the close sold at \$300. The second dividend of \$6 per share for the month of March was disbursed on the 18th inst.....

OPHIR sold at \$175@196, and closed at \$200. A telegram of the 20th states that work is progressing finely at the new shaft.

SAVAGE—receded to \$145, rose to \$173, and closed at \$162. Owing to the inclemency of the weather no advice of a late date have reached the office in this city....HALE & Norcross was in the market at \$2,800@2,730. No late news of any importance from the mine.

The sales in the Board during the past week have been as follows: Regular sessions, \$2,338, 597; open sessions, \$603,683—total, \$2,942,280.

PAPER BELTING.—The experiment of making belting from paper has proved a success in the hands of Crane & Co., at Dalton, Mass., and the article is now used in all their own mills, and several other manufacturing establishments. The belting resembles the genuine oak tanned leather, and serves alike well in a dry or damp atmosphere.

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MAKINS.—A Manual of Metallurgy, more particularly of the Precious Metals, including the Methods of Assaying them. By G. H. Makins. 1 vol. 12mo. cloth. Illustrated by 115 engravings.	3 50
OVERMAN (Fred).—A Treatise on Metallurgy; comprising Mining, and General and Particular Metallurgical Operations. 1 vol. 8vo. cloth.	7 50
PIGGOT.—The Chemistry and Metallurgy of Copper. By A. Snowdon Piggot, M. D. 1 vol. 12mo. cloth.	2 00
PHILLIPS AND DARLINGTON.—Records of Mining and Metallurgy; or, Facts and Memoranda for the Use of Mine Agents and Smelters. By J. A. Phillips and John Darlington. 1 vol. 12mo. cloth.	4 00
PERCY (John).—Metallurgy; the Art of Extracting Metals from their ores, and adapting them to various Purposes of Manufacture. Iron and Steel. 1 vol. 8vo. cloth.	15 50
PLATTNER AND MUSPRATT on the Use of the Blowpipe. 47 Diagrams. Third edition, revised. 8vo. cloth. London, 1854.	6 00
Practical Use of the Blowpipe; being a Graduated Course of Analysis. 12mo. cloth. New York, 1855.	2 00
SCOFFERN'S Useful Metals and their Alloys. 1 vol. cloth.	5 50
SMITH'S Blowpipe.—Vade-Mecum. The Blowpipe. Characters of Minerals Alphabetically Arranged. 8vo. cloth. London, 1862.	1 75
URF'S Dictionary of Arts, Manufactures, and Mines. 2,390 Engravings. From last London Edition. 3 vols. 8vo. cloth. New York.	16 50
WHITNEY.—A Geological Survey of California. Report of Field Work from 1859 to 1864. By J. D. Whitney. Per. vol quarto.	6 00
WHEELER and RANDALL'S Quartz Operator's Handbook. Flexible cloth. 12mo. San Francisco 1865.	1 00

Any of the above Books will be furnished by return mail or express, on receipt of the price with postage added. Any other books desired will also be furnished at the lowest San Francisco retail prices.

Address, **DEWEY & Co.,**
Mining and Scientific Press Office, San Francisco.
1413-lamtf

THE SINK OF HUMBOLDT.—A station keeper at the sink of Humboldt, thinking to find good water by sinking below the water level of the lake, procured an artesian auger and bored down 90 feet through compact earth, when the auger suddenly dropped into a soft substance that yielded so readily as to enable one man to push it down to an indefinite depth by simply bearing his weight on it. When it was drawn out, it brought with it a sulphurous stench. The project was abandoned, and now the denizens dig an ordinary well thirty or forty feet deep, take water from the slough, and hang it in the well to cool.—*Omaha Avalanche.*

Fluctuations in Leading Mining Shares for the past Six Months.

NAME OF COMPANY.	Sept. 1st.	Sept. 15th.	Sept. 30th.	Oct. 10th.	Oct. 20th.	Oct. 30th.	Nov. 10th.	Nov. 20th.	Nov. 30th.	Dec. 10th.	Dec. 20th.	Dec. 30th.	Jan. 10th.	Jan. 20th.	Jan. 30th.	Feb. 10th.	Feb. 20th.	Feb. 30th.
Gold & Curry..... per ft.	325	320	360	275	310	310	375	320	375	315	350	357 1/2	340	310	485	880	665	
Chollar.....	87 1/2	78	51	44	18	60	60	62 1/2	60	60	62 1/2	60	60	60	60	60	60	
Savage.....	175	146	150	115	129	116	107	102	107	104	122	116 1/2	122	128	150	150	150	
Chollar-Potosi.....	4	331	355	195	185	202 1/2	190	135	131	131	131	140	191 1/2	215	3,400	191	225	210
Hale & Norcross.....	1,100	850	600	745	850	850	850	850	850	850	1,160	1,240	2,200	2,900	4,100			
Shasta.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Danby.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wide West.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Herald Monte.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
El Dorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Overman.....	61	61	55 1/2	55	76	61	48	49	44	50	78	107	86	71	80	93 1/2	200	197 1/2
Sierra Nevada.....	14	7	.....	.....	13 1/2	9 1/2	.....	25 1/2	35 1/2	.....	13 1/2	15	17	24	15 1/2	12	150	130
Yellow Jacket.....	455	455	465	340	480	340	375	400	524	478	720	720	675	725	790	830	1,210	1,250
White & Murphy.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Battle.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baltimore American.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Medicine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sacramento.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Imperial.....	113	144	139	112 1/2	127	135	151	158	170	160	172	165	175	175	175	175	175	175
Crown Point.....	870	715	721	680	890	595	550	605	690	610	691	765	730	1,120	1,250	1,500	1,875	
North American.....	115	430	135	75	110	120	110	115	115	120	124	151 1/2	150	182 1/2	195	360	255	
Alpha.....	450	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Empire M. and M. Co.....	175	175	175	145	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Confidence.....	50 1/2	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Exchange Independent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kentuck.....	200	200	242 1/2	200	234	160	140	160	160	165	226	270	225 1/2	255	262	283	300	285
Gold Hill Q. M. Co.....	.....	.....	.....	.....	100	90	90	105	132 1/2	75	75	80	77	80	102 1/2	95	100	95 1/2
Segregated Belcher.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and Date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY OF DELINQUENT SALE.	DATE OF PAYMENT OF DIVIDEND.
Alella, Sierra Co., Feb. 3, \$1.....	March 6—March 30	Payable Jan 10
Amador Co., dividend, \$5 per share.....	March 25—April 10	Payable Jan 10
Altaville, March 15, \$1.....	April 13—April 30	Payable Jan 10
Sullivan, March 5, \$15.....	Payable Immediately	Payable Jan 10
Chalk Mt., Nevada Co., March 15, \$1.50.....	May 12—July 6	Payable Jan 10
Gale, Storey Co., Feb. 4, \$5.....	March 25—April 18	Payable Jan 10
Great Central, Arizona, Feb. 19, \$1.....	March 25—April 18	Payable Jan 10
Chollar-Potosi, Storey Co., Feb. 10, \$50.....	March 17—April 6	Payable Jan 10
Crown Point, Nev. dividend \$30.....	Payable May 15	Payable Jan 10
Danby, Lyon Co., Nev., Feb. 1, \$2.....	March 4—March 23	Payable Jan 10
Eschequer, Gold Hill, Nev., Jan. 30, \$3.....	March 4—March 23	Payable Jan 10
Empire M. & M., Nev., dividend \$6.....	Payable May 16	Payable Jan 10
Falcon St. & Ft. P. R., March 10, \$5.....	April 11—April 27	Payable Jan 10
Fogus M. & M., Amador Co., Feb. 19, \$14.....	March 23—April 9	Payable Jan 10
Golden Rule, Tuolumne Co., div. 50c per sh.....	Payable Feb 25	Payable Jan 10
Great Central, Arizona, Feb. 19, \$1.....	March 25—April 18	Payable Jan 10
Gold Hill Q. M. & M.—dividend, \$7.50.....	Payable Dec 16	Payable Jan 10
Hopewell, Nevada Co., Feb. 23, \$1.....	April 2—April 21	Payable Jan 10
Humboldt Canal, Humboldt, Feb. 10, \$5.....	March 15—April 11	Payable Jan 10
IX L, Alpine Co., Feb. 13, \$1.50.....	March 23—April 16	Payable Jan 10
Imperial, Virginia, Nev., div. \$10.....	Payable July 15	Payable Jan 10
Julia, Storey Co., Nev., Feb. 18, \$2.50.....	March 23—April 11	Payable Jan 10
Josephine Quicksilver, San Luis Obispo, div. \$2.....	July 8	Payable Jan 10
Kearsarge, Inyo Co., Jan. 20, \$1.....	March 21—April 14	Payable Jan 10
Kentuck, div. \$5 per share.....	Payable March 14	Payable Jan 10
Lyon Mill, El Dorado Co., Feb. 22, \$2.....	March 27—April 13	Payable Jan 10
La Blanca, Sonora, Mex., Jan. 2, \$2.....	Feb. 14—March 25	Payable Jan 10
N. A. Wood Preserving Co., Feb. 20, \$2.50.....	April 9—April 28	Payable Jan 10
North Star Lander Co., Nev., dividend.....	Payable Nov 23	Payable Jan 10
Mohawk & Montreal, Nev. Co., Feb. 15, \$2.50.....	March 20—April 11	Payable Jan 10
Morning Star, Alpine Co., Feb. 14, \$1.....	March 21—April 11	Payable Jan 10
Oxford Beta, Esmeralda, Nev., Feb. 10, \$50.....	March 4—April 5	Payable Jan 10
Rattlesnake, Yuba Co., March 16, \$2.....	April 20—May 6	Payable Jan 10
Richland, Lander Co., Nev., March 4, \$1.....	April 6	Payable Jan 10
San Marcial, Sonora, Mex., Annual Meeting March 17.....	March 17	Payable Jan 10
Sierra, Genoa, Nev., Feb. 10, \$1.50.....	March 18—April 2	Payable Jan 10
S. F. & Castle Dome, Arizona, Feb. 20, \$10.....	March 30—April 21	Payable Jan 10
San Francisco City Bonds, \$5, 1855.....	March 16—April 11	Payable Jan 10
San Francisco City and County Bonds, \$5, 1854.....	March 16—April 11	Payable Jan 10
San Francisco City and Co. Bonds, \$5, 1854.....	March 16—April 11	Payable Jan 10
San Francisco City and Co. Bonds, \$5, 1854.....	March 16—April 11	Payable Jan 10
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San Francisco City Bonds, \$5, 1854.....	March 16—April 11	Payable Jan 10
Sacramento County Bonds, \$5.....	March 16—April 11	Payable Jan 10
Marquette County Bonds, \$5.....	March 16—April 11	Payable Jan 10
Stockton City Bonds, \$5.....	March 16—April 11	Payable Jan 10
Yuba County Bonds, \$5.....	March 16—April 11	Payable Jan 10
Santa Clara County Bonds, \$5.....	March 16—April 11	Payable Jan 10
Butte County Bonds, \$5.....	March 16—April 11	Payable Jan 10
San Mateo County Bonds, \$5.....	March 16—April 11	Payable Jan 10
California Steam Navigation Co.....	March 16—April 11	Payable Jan 10
Spring Valley Water Co.....	March 16—April 11	Payable Jan 10
Sinto Telegraph Co.....	March 16—April 11	Payable Jan 10

* Those marked with an asterisk (*) are advertised in this Journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, March 20, 1868.

MISCELLANEOUS STOCKS.

United States 7-10ths Bonds, June Issue..... 7 1/2

Legal Tender Notes..... 7 1/2

California State Bonds, 7s, 1857..... 93 96

San Francisco Bonds, 1851..... 102 1/2

San Francisco Bonds, 1855..... 93 95

San Francisco City and County Bonds, 6s, 1854..... 90 84

San Francisco City and Co. Bonds, 7s, 1856..... 80 80

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San Francisco City Bonds, 6s, 1855..... 80 80

San Francisco City and Co. Bonds, 7s, 1856

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Chronicle, March 7th: During the past week, rumors to the effect that a rich ledge of silver-bearing ore has been struck in the tunnel of a well-known claim within a mile of Silver Mountain, have been current in this vicinity.

We have it from a pretty authentic source, that the Pittsburg Co. have struck good ore in their mine up Scandinavian cañon; so good, that Mr. Thompson, feeling confident of immediate need of a mill, has gone over the mountains to negotiate for the Whiteside mill.

Amador County.

Dispatch, March 14th: The proprietors of the Coney & Bigelow mine are adding more stamps to their mill—will start up again next week. The shaft is now down over 260 feet, and still sinking; disclosing a fine vein of nine feet in thickness. The force on the shaft has been doubled.

Two hundred tons of ore from the Kennedy mine is now being delivered at the Coney & Bigelow mill for crushing.

The Casco mine has in the south drift a vein of eight feet, and in the north drift one of three feet. They are now hoisting large quantities of rock. There is another vein of rock about 30 feet east of their present shaft, toward which a drift is now being made. This vein was found by means of a tunnel which was run on the eastern declivity.

Ledger, March 14th: The yield of the sulphurets saved at the Coney & Bigelow mine for the month of February, amounted to the sum of \$3,500. These sulphurets are worked by chlorination process, at trifling expense, and add largely to the earnings of this mine.

Placer mining is not yet "gone in." More good strikes have been made the present season than for some winters past. The owners of a claim at Clinton (owned we believe by Spagnoli & Pitcher) picked up over 900 pounds of nuggets since they began work at the beginning of the rainy season. This same ground has been pronounced worthless since 1850.

The same paper has an editorial, urging the absurdity of the present high rate of wages, and suggesting, that if it was reduced, many mines now neglected might be profitably worked, and that no class would be a greater gainer by the change, than the one which now thinks that it would be the loser.

Calaveras County.

Chronicle, March 14th: Labor is now being vigorously prosecuted at a number of placers on lower Rich Gulch. The first claim on the vein, at the upper end of the gulch, is that of the Plomo Mill and Mining Co. When the rains commenced last fall not a pick had been struck in the lead at this point, and not a move made towards the erection of machinery. At the present time quartz is being taken from the vein from shafts and a tunnel; an 8-stamp mill is pounding out the precious metal night and day; quite a village has sprung up, and the gulch presents a lively and business like appearance. The battery consists of eight stamps with a combined weight of 4,800 lbs. The stamps are run at the rate of 80 strokes per minute. Its crushing capacity is from 80 to 100 tons per week. The tunnel, situated directly above the mill, has been driven 60 ft. on the lead, which is fully six ft. in width. The rock looks and prospects extremely well. Gold is plainly visible in the rock in the end of the drift. Two shafts are being sunk, one of which has reached the depth of 60 ft. and the other 25 ft. Alexander & Co. are running their mill constantly and meeting large returns. Norton & Co. below them on the same lead, are already in 140 ft. with their tunnel, and pushing it ahead night and day. They expect to reach the vein in a month, when they will be 200 ft. beneath the surface.

Letter from Mokelumne Hill: In the Quartz Glen (or Foote & Thompson) mine, the present owners have driven a tunnel on the vein for a distance of 650 ft., making a back between the level of the old works and tunnel of 176 ft., and it is 300 ft. perpendicular from one level to the ravine or lower point of the claim. Rock from the old works, packed on animals to the French mill, one year ago, paid \$76 per ton. South of the claim is the French mine. The mine was worked to a considerable extent, with fine prospects, but as the mine belonged to one party and the mill to another, they disagreed, and in consequence are both idle.

The next the Anglo Saxon mine, a half mile east of the Quartz Glen, is the same

that created so much excitement in 1856, by the extraordinary richness of the rock; since then there has been a large amount of work and money expended. The developments consist of three shafts, one of which reaches the water level of the vein. It is in this shaft that the last work was done. Rock last fall worked in the French mill, paid \$10, while the sulphurets assayed \$600 per ton.

There is a level run from the bottom of this shaft 32 ft. The vein here is three ft. in thickness, and richer quartz than this appears to be is hard to find.

Register, March 14th: Mr. Irvine's deep claim is reported as looking better than it has ever before; and that Ben Thorn's quartz vein increases in width and richness as they sink upon it. The extensions of the Ben Thorn vein have been worked to some extent with most flattering prospects.

Nevada County.

Transcript, March 14th: The claims of Wm. Nichols, at Columbia Hill, have been purchased by a San Francisco company.

Same, 17th: Dr. Farnham's company commenced washing at Chalk Bluff yesterday morning. This company has run into the hill 300 ft., sunk a shaft, and have now commenced washing in an excellent bed of gravel.

Gazette, 11th: The Gougeye, Eastern and Empire (cement mills) at Hunt's Hill, are all running regularly and doing well. Each one of these mills employs eight stamps. Good miners are scarce at this mining camp, and fifteen or twenty good drifters and carmen can find steady employment there, and pay every week if they desire it.

Thomas Marker, who came down from Washington on Monday, reports but very little mining being done in that place or Omega. Ditches and flumes have been severely damaged by the heavy floods. The miners labor under a serious inconvenience in both of these towns for the want of lumber to repair flumes, and on account of the great depth of snow there is no prospect of their being able to obtain a supply before May or June.

17th: A gentleman from Moore's Flat, yesterday, informs us that the snow at that point is four and one half feet deep. At Snow Tent, it is ten feet, and at Eureka eleven feet deep.

Grass Valley National, March 11th: We are informed by a gentleman from Rough and Ready district, that the quartz recently struck by Arhorgast & Co., continues to yield rich prospects. The ledge is about 300 yards south of the head of Oceola ravine, and is about two feet in average thickness, composed of three strata of decomposed quartz. We are informed that \$3,000 have been taken from it in panning out the decomposed quartz and dirt, which prospects from 50 cents to \$6, and up to three and four ounces in occasional pans. The owners are now running a deep cut in the face of the hill to reach the ledge. The old Oceola ledge is to be worked this season. The company intend putting on machinery. Hawes & Co., on Goshen Hill, near Rich Flat, in hydraulic claims, are averaging from \$5 to \$6 a day to the hand. Barker & Rix are working hydraulic diggings at Grub Creek, near Oceola ravine, and are said to be making money. The Vial Brothers of Grass Valley, have been opening diggings on Randolph Hill. They have laid 2,000 feet of iron pipe, and have now flattering prospects of success.

Fritz Jensen, in skirmishing around Wolf Creek, a few days ago, picked up a beautiful specimen, for which he was offered \$10.

Same of 12th: We were shown last evening, some rich specimens from a ledge on the Auburn road, about a quarter of a mile north of the North Star mill, at French Lead. This ledge was taken up some years since by Tarlton & Co., and some work done on it, but abandoned. Michael Hogan and some other parties relocated it under the name of the Irish American Co., a few days since.

Another of the Paine & Stephen's Concentrators is to be put up at the Eureka Co's works.

14th: Work is temporarily stopped at the North Star mine. A few days since the massive crown wheel of the pump gearing unfortunately gave way, and the water in consequence rose so high as to compel the miners to cease work until new machinery is placed in gear and the mine cleared of water.

Excelsior. *Territorial Enterprise*, March 12th: The tunnel connecting with the main shaft of the Mohawk and Montreal mine, situated in Excelsior district, is completed, and ore may now be taken from the lead and transported by means of cars directly to the mill.

Placer County.

Herald, March 14th: We saw a few days ago, some exceedingly rich quartz from the

Buckeye mine, two miles west of Auburn. The rock was obtained at a depth of 80 ft. and was hung together with gold. We learn that the shaft is now down 160 ft., and that five tons of ore crushed at the Golden Rule mill, yielded over \$25 per ton in free gold.

We are told that the Perry, McGonigle Co. claim, on the Black ledge, have purchased a new Cornish pump, and are erecting a whim, and think they will be able, within a week, to drain the main shaft and commence taking out ore again. They have drifted 40 ft. south from the mouth of the old tunnel and struck good prospects.

Dutch Flat *Enquirer*, March 14th: The Dutch Flat shaft has reached the depth of 120 feet. Three shifts are constantly employed, and the work is steadily descending at the rate of two feet in 24 hours. It is thought the bedrock will be reached at from 30 to 40 ft. below the present level.

At Iowa Hill the miners are working steadily descending at the rate of two ft. in 24 hours. The Sailor Union Co. are running off the top dirt of their claim by the acre. Butler & Manuel are at work in the old Rich claims, just below the Sailor Union. The North Star Co. are running a tunnel through the bedrock, to obtain fall for their sluices, preparatory to rigging up as a hydraulic claim. The tunnel is now in 300 ft., and they have about 300 feet more to run. The Jamison Co. are piping away, and are being well remunerated. This claim and the Sailor Union, working as they do from opposite sides of the hill, will in a short time cut the work in two. The Morning Star Co. are running a tunnel to their pay level, the present one being too high for practical use. The mine is paying splendidly.

Sierra County.

Messenger, March 7th: The misunderstanding between the locators and purchasers of the disputed stock in the Good Hope quartz claim has been amicably settled. The title is now perfect, and the claim is one of the best in the county.

Sierraville County.

Yreka Union, Feb. 29th: There is perhaps no mining field now in California that holds out more inducements for the investment of capital than the Klamath River, a stream not merely supposed, but known, to be rich in deposits of gold. We call especial attention to that portion immediately below the mouth of Cottonwood creek. Last fall one company, Shaft & Co., threw in a small wing dam and worked for a few months, and as a result took out, we understand, some \$16,000. The same company will operate again in the same claim this year, but on a much more extensive scale. We understand also that some eight or ten other claims in the same vicinity will be worked.

ARIZONA.

San Bernardino Guardian, Feb. 29th: We have the following items from Mr. Lawhenheimer, who arrived here on Tuesday from La Paz: Mr. Reed has been quite successful with his process for working the sulphurets near Prescott; from a lot of tailings he obtained \$35 per ton; and from the rock he extracted \$95. Smith's claim on the Vulture mine has been opened, and is developing splendidly. The lode now shows rich ore for thirteen feet in width, and they have not yet come to its extent. This claim adjoins the Discovery claim. The Wickenburg mill had been running only two days, but had given entire satisfaction to the proprietors. The Phelps company, on the Vulture, are operating in a systematic manner. The amount of hullion turned out weekly is said to be large. At Weaver, placer mining is still pursued, when the season permits. While the ditch water lasts, the Mexicans keep at work and wash out plenty of coarse gold. Quartz mining here and on Antelope Creek has been abandoned.

Same of March 7th—Letter from Samuel Adams: * * I called at the Planet, Great Central, Springfield and other copper mines about 12 miles up Williams' Fork. A large amount of rich ore was being taken out. I know of no locality where there are greater opportunities for profitable investment than within a circumference of six miles around the Great Central mine. No ore is shipped from this section but will pay \$80 per ton. Yet such is the difficulty in getting facilities to take it down the river, that it is fast accumulating at the mines or at the landing.

COLORADO.

Herald: Warren Hussey & Co. had yesterday, at their bank in Central, a retort of 36.09 ounces of very fair gold, from one and three-quarters cords of ore from the Aurora lode. The shaft in the Munsell lode is now down thirty-five feet. Several specimens have been shown which assay over \$2,100 per ton. Work has been com-

menced on the Bates and Hunter lode. The Galconda lode is being worked. Mining is prosecuted with vigor on James creek.

The *Miner* says the New Boston lode is rapidly progressing. The Georgetown tunnel has reached forty-six feet through a fissure vein.

Denver *News*, Feb. 26th: We were shown this morning, by Mr. John Wood, of Snake river country, a silver brick weighing 154.65 ounces, from ores from different lodes owned by him. The ore was reduced at the United States Branch Mint, in this city.

DACOTAH.

D. K. Allen writes the Montana *Herald* in regard to the Sweetwater mines, as follows: In this whole section of country there are probably not over twenty-five holes down to the bed-rock. Whether there are extensive placer mines here or not, remains yet to be seen. One thing is certain—where there are so many rich leads there ought to be rich diggings. Let no man dare to come here unless he has enough of everything to last him until the 15th of June. Flour is \$20 per sack; bacon, 75 cents; sugar, 75; coffee, 75; tea, \$4 per pound; beans, 25 cents; potatoes, 15; butter, \$1; cheese, 40 cents; eggs, 75; picks, \$7 50, and poor at that; axes, \$6, and everything else at "49" prices, and none to be had at that.

Montana *Post*, Feb. 22d: Reports now come in of the discovery of fabulously rich quartz ledges, and that miners are making from \$5 to \$20 per day by the slow and tedious process of hand mortars. One correspondent states that placer mines of great extent and richness have already been discovered.

Territorial Enterprise, March 3d: Almost daily parties pass through this city for Salt Lake, intending to go from that place to the Sweetwater mines as soon as they ascertain that they can get through the South Pass. The news from the mines is, however, vague—nothing satisfactory.

Austin *Reveille*, Feb. 28th: This morning a train of sixty-one animals was driven out of the city towards the Sweetwater mines, which point it is intended to reach by the way of Salt Lake city.

IDAHO.

Owyhee *Avananche*, Feb. 22d: Last Tuesday work was stopped on the Oro Fino mine and all the men discharged, except enough to continue the shaft in the north works. The principal cause of this suspension is the great disadvantage under which the Company have labored in not having steam hoisting works. It is expected that the work will be resumed in a couple of months. Mr. Gove, the Secretary, has gone to Virginia City for machinery. He will also bring up material for repairing the Morning Star mill.

In the Woodstock, drifting has been going on from the surface north on the ledge and from the main shaft south. In the drift running south, the quartz contains gold visible to the naked eye. In the north shaft is found splendid silver ore. The ledge is becoming softer and easier to work—the same amount of work that formerly used up twenty drills can now be performed with three. Quartz in considerable quantities is now being taken out.

The Whisky boys are busy night and day putting down the shaft on their mine. The ledge, which has hitherto been nearly perpendicular, now dips considerably towards the east.

Trask & Son's new arastra building is now entirely inclosed, and the timbers are being got out for the water-wheel.

Some of the richest looking gold-bearing quartz we have seen in camp was this week taken from the Poorman mine.

A drift is being run north from the shaft on the Potosi mine, instead of south, as we inadvertently stated last week. A very fine character of crystallized silver ore is now being taken from the mine.

We learn that work will be commenced immediately on the Idlewild mine, it having been bonded till the first of August next.

The "Alice Earl" is the name of Judge Watson's new discovery which we mentioned last week. We are informed that the rock (not selected) at the place of discovery assays \$25 per ton.

Same of 29th: In Flint district, work is progressing rapidly on the Rising Star; work is also going on briskly on the Excelsior, which has been bonded to the Rising Star Company. Mr. Leinehan is engaged in sinking a splendid double shaft, five feet by eight, on the Pacific. It is now down 70 feet, with 6x10-inch timbers. Two samples of the ore recently assayed went respectively \$112.49 and \$167.32 per ton, mostly silver. The vein at present is six feet in depth, but broken up.

It is probable that there will be a lawsuit between the Ida Elmore and Golden Charlotte. A compromise was at one time effected

by which a certain number of feet of neutral ground was left between the two claims; but the partition wall has now been broken down, and there is considerable excitement. The Ida Elmore party claim that their mine, and consequently the Golden Chariot, is neither more nor less than the New York ledge.

Idaho City World, Feb. 22d: A party of miners opened the season yesterday on a claim on Bear Run, at the upper end of Montgomery street, and were actively sluicing. We hear that others have started in at different places about here.

Same of 26th: A great many are getting ready to commence operations in mining all about here, and from other portions of the Basin we hear very encouraging reports of early commencement of the season in the gulch and bar claims, and all look for a very prosperous year.

The new mining ground along the route of Ben Willson & Co's Big Ditch, as now freshly extended, will give profitable employment to hundreds of white miners—not Chinamen—on the opening of the approaching mining season.

NEVADA.

Esmeralda.
Aurora Union, March 7th: The Horace Poor ledge, high up on Silver Hill, which has been steadily worked for a year and a half, is in good shape, and has, we are informed, a considerable quantity of good ore on the dump. We may expect before long to hear of a good clean up from it.

Humboldt.
Register, March 7th: The Essex Mill is about ready for ore. On the evening of the 29th of February, the shrill voice of its whistle could be heard for miles around. The first business for this mill is the reduction of one hundred and fifty tons of ore from the Moore mine, after which it will be kept busy on the Essex and Empire mines.

We learn from Christ Lark that he will resume work in a few days on the Rochester mine, with sufficient money to develop it without further delay.

RENSSELAER.

Revere, Feb. 28th: The Timoke, in Lander Hill, is producing extraordinary ore from its deepest workings. The assay of the pulp of two tons which have just been reduced at the Manhattan mill, gave a yield of silver exceeding \$1,000 per ton.

The Florida mine, which never looked so well as at present, either as regards the quality of its ore or the appearance and size of its vein, will produce a fine lot of bullion for the month of February. It has sent 70 tons of ore to Murphy's California mill for reduction, which will be completed on Monday next, the average yield of which will exceed \$300 of silver, coin valuation per ton. This fine ore was extracted from the lowest level, which is 400 feet on the incline.

Some ore from the Murphy mine, of the Twin River Co., was amalgamated in the mill of the company a few days since, after roasting in the Stetefeldt chloridizing furnace. The bullion was found to be .880 fine; while the proportion of gold was about six times greater than in the same ore roasted in reverberatory furnaces.

Some of March 3d: For several days we have heard rumors of the discovery of gold placers in the southeastern part of the State, and the organization of a district named the Breyfogle, located by rumor near the notorious "Death Valley." The reported placers are said to have been discovered by a party of men from Owen's River Valley, who were prospecting the country lying to the eastward, and were rewarded by finding rich placers about 150 miles east by south from Fort Independence. The gold occurring in a reddish soil on the banks of a creek, and yields the value of two and three cents to the handful. As large an amount as \$11,000 in handsome gold is reported to have been carried back to Fort Independence.

Col. David E. Buel, accompanied by Professor B. C. Vineut, of London, arrived in the city at four o'clock this morning, in 24 days from Southampton. The Col. has returned for the purpose of having important mining property in the Silver Bend district examined and reported upon, when he will hasten back to London. He speaks highly of the tone of English capitalists concerning the mines of this State.

Silver Bend Reporter, Feb. 29th: Hot Creek correspondence: The Old Dominion mill which was burned down, is soon to be rebuilt. The work still goes on upon the mines, and there is plenty of good rock upon the dumps.

Letter from East Belmont: The "Big mill"—the Queen of the Southwest,—is hammering, roasting and grinding out the silver bricks at a lively pace. Farrel escorted me through the engine room the

other day. Everything in the room is as neat as a pin. They have two of the finest engines I ever saw. The furnace room contains ten reverberatory furnaces.

Paxton & Co. during the week, shipped 13,234 ounces of bullion, the product of the Combination Co's mine at East Belmont.

WASHINGTON.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial Enterprise, March 6th: At the California Bank can be seen to-day two fine bars of silver bullion from the Lady Bryan mine. The largest of these bars weighs 1,288.30 ounces and is worth \$2,105.06; silver, \$1,625.70; gold, \$479.36; gold, .018 fine; silver, .976 fine. The second bar weighs 1,249.30 ounces, and is worth \$2,028.43; silver, \$1,576.49; gold, \$451.94; gold, .017.5 fine; silver, .976 fine. Weight of both bars, 2,537.61 ounces; total value, \$4,133.49.

The Kentuck Mining Company has declared a dividend of \$5 per share, payable on the 14th inst., and the Savage Mining Company a dividend of \$5 per share, payable on the 15th.

NEW MEXICO.

Denver News, Feb. 19th: We received a call a few days since from J. F. Robinson, of the Colorado Mining Co., Morino mines, New Mexico. He has given us an account of the opening up of those mines. * *

The Colorado Co., had, at first, two men working, who took out about four ounces per day. After they got the water in, they began to realize about one hundred dollars. In the first week in September, there was one day in which they took out eight hundred and four dollars worth of gold, with four men at work. On the eighteenth of September, having but three men throwing in dirt, they panned out \$394. At that time the water began to fail them. * * Private parties with reekers and sluices were able to realize from three to five dollars per day. In Humboldt district, Newkirk & Co. have run a tunnel on the upper end of the Scott & Robinson claim, and have struck the bed rock. They found one dollar to the pan. They are still working it. All the miners are waiting anxiously for the spring to open, that active operations may be commenced. There are new arrivals every day.

OREGON.

Jacksonville Sentinel, Feb. 29th: Mr. Alex. Watts informs us that Mr. S. Messinger and himself have just completed a prospecting anastha on Horsehead Gulch, a tributary of Williams Creek, in Josephine County. They are intending to crush several tons of rock from the old Horsehead ledge.

The late rains have given the miners a fair start; all the large ditches are full and the boys are busy making the most of the probably short season before them.

WYOMING.

Cheyenne Argus, Feb. 20th: A gentleman who has just returned from up the road, informs us that a great excitement is raging on account of the discovery of rich gulch diggings at the head of Roek Creek, on the Salt Lake road. Many people were flocking there, and nearly three hundred men had left the working parties on the railroad and joined in the "rush" to the new Dorado. We are unable to learn any particulars as to the extent or richness of the new mines.

RUSTING OF IRON.—Fayen determined that a saturated solution of potassd lye, when diluted with from one thousand to two thousand parts of water, will protect iron from rusting in water. Saturated lime water, when diluted three times, will do the same, but not if diluted four times. Saturated carbonate of soda, diluted with from fifty to fifty-four times its bulk of water, will also protect iron, but not when diluted with fifty-nine times. Fine cast steel requires less potash for its protection.

THE WOODEN WALL-HANGINGS.—The new wood hangings, invented in Boston, of which we spoke a week or two ago, are, it is said, attracting great attention. More than five thousand packages of samples, in envelopes, of the various woods have been given away, and not half who applied could procure them, for want of time to put them up. More than five thousand rolls of the hangings have already been ordered.

RAILROAD TO DENVER.—The Omaha Pacific Railroad Company have notified the Government that they intend to construct a railroad from Denver to the main road, a distance of 102 miles, and have it completed in October next.

A DECAPITATED CHICKEN.—We find the following in the *Bulletin* of March 13th:

A fortnight ago the cook at Sturgis' Hotel, Martinez, Contra Costa County, cut the heads off two young roosters and threw them into a shed to bleed. The next morning he sought for them, but only one remained; the other was found running in the yard alive, and blindly butting the stump of its neck against the fence, unable to guide itself. A guest in the house undertook to rear the maimed bird, and has succeeded in doing so. The wound, though unsightly, has healed, and the creature is apparently as healthy and its plumage as bright as when in its normal condition. Its keeper administers food, water, and gravel by the aperture in its neck, and seems to take in sustenance as readily as when it had bill and tongue. The creature has now subsisted fourteen days, and the wound being healed, there is no reason why it should not live for years.

As a natural curiosity showing that the head is not necessarily a vital member of a vertebrate animal, it has few parallels. Who can say now, with this case before them, of life, motion, digestion and sense of touch remaining in full force after the loss of the entire head and part of the neck, that the victims of the guillotine may not retain some sensibility after decapitation?

The case as here stated, would be an impossible one. Were it true that "the entire head and part of the neck" had been removed, the bird would be incapable of respiration and deglutition. But if, as the *Solano Press* has it, "a small part of the skull was remaining,"—it ceases to be incredible; for that small portion must have included the *medulla oblongata*, or cranial prolongation of the spinal cord, whence are given off the nerves relating to the functions above named. The *cerebellum*, or "little brain," also, was probably uninjured; for to that portion of the contents of the skull, is due the power of regulating or combining the muscular movements. A partial removal of it would have made the motions of the creature in walking, or "running," irregular; while its total removal would have destroyed the power of running altogether.

SEWING MACHINES SIXTY YEARS AGO.—A late number of *Notes and Queries* contains the following, said by a correspondent to be quoted from the *Athenaeum* for February, 1807:

"FRENCH INVENTION FOR MAKING CLOTHS BY A MACHINE.—M. J. Stone, Rue de la Pépinière, Paris, obtained a *brevet d'invention*, or patent, in February, 1805, for 'a machine for joining the sides of segments of all flexible matters,' which he asserts will be particularly serviceable in preparing clothing for the army or navy. It is supposed that one man may do as much work with this machine as one hundred persons with the needle. If it is used to any extent it will more properly deserve the name of 'The Devil among the Taylors,' than the game that is at present so called."

"We find that the machine is fully described and illustrated in the volume for 1824 of the official French '*Descriptions des Machines et Procédes spécifiques dans les Brevets d'Inventions*, etc.' (vol. viii., p. 66, plate 11). It is patented under the names of Messieurs Stone and Henderson. We cannot find that this patent was taken out in England. The inventors were probably Americans from the United States. Its broad principle may be described as being that of passing, to and fro, a common threaded needle horizontally through two pieces of stuff with their edges protruding over a pair of clamps."

THE LAW PROTECTS INVENTORS.—During the war a Colonel Green invented the device of making wells by driving down tubes, and sent a lieutenant to carry out the plan. The latter procured the assistance of a well digger. Subsequently both these parties got ahead of Colonel Green and obtained patents, but after a thorough trial in the courts, the real inventor has defeated his opponents.

CASHMERE GOATS.—One of the last Panama steamers brought thirteen pairs of pure blood Cashmires. They are imported by E. Holland & Co., and are in excellent condition. They are from Georgia.

Those wonderful Brazilian Pebble Spectacles of Muller's, at 205 Montgomery street, are made on truly scientific principles.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—*John Reed.*

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—*J. C. Felton.*

After as careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—*Wm. H. Hill.*

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—*F. W. Hatch.*

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the application of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text books.—*James Bennett.*

I am happy to express my conviction of the value of the whole treatise. It will give me much gratification to see so thorough and excellent a treatise emanate from young California.—*Martin Kellogg.*

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I believe the work will be a valuable and much needed addition to our school text-books.—*Herman Perry.*

You have brought the results of a profound analysis, and made them available, in a practical form.—*L. H. Bryant.*

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as practical pleaders and advocates at the forum.—*John Curry.*

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. Exactly calculated to interest.—*It will soon become a necessity in every lawyer's library.*—*Charles A. Tuttle.*

Its clearness and comprehensiveness make it easy.—*G. W. Bowie.*

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end, seeks to teach the student not only how to take sentences apart, but how to construct them. His system has the merit of originality. We know of no work in which can be obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Layres has done the cause of popular education good service.—*S. F. Bulletin.*

This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It is most useful, and meets it in a form and size cheap and convenient, and in reach of the humblest.—*Alta California.*

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—*S. F. Times.*

Prof. Layres plunges at once "in medias res." He seizes a sentence (which is the unit in composition, whether written or spoken), holds it up before you; tears it to pieces before your eyes—or rather, we should say, noisily and skillfully dissects it—displays one by one its several parts, makes you thoroughly acquainted with each, in its entirety; and then shows you how to put them together again. A series of such exercises, increasing in complexity as gradually that you do not notice the difficulty, and the thing is done; you are master of the subject.—*Mining and Scientific Press.*

Its design is to show that ideas can be so arranged as to increase their power; in short, to teach the mechanism of composition, eloquence and oratory. A desideratum long felt is supplied.—*S. F. Examiner.*

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Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. Rancy is our duly authorized agent for Sacramento County. Nov. 29, 1867.

Dr. J. G. Yates is our duly authorized traveling agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, March 21, 1868.

Notices to Correspondents.

ONE THAT IS CURIOUS, Placer County,—wants to know whether the organisms termed diatoms, are to be found in other regions, in the same abundance as in California. We may reply that they probably are, but not of the same degree of purity,—a most important consideration when it is desired to employ them as a polishing powder. In the gault of the English southern counties, (a rock belonging to the cretaceous series) with the upper member of which, the rock to be noticed insensibly mingles, lies a soft, white-brown rock, possessing the appearance of limestone. It is remarkable for its low specific gravity, and still more so for the very small amount of lime which it contains. The great singularity of the latter circumstance, consists in the fact that it is overlaid by the great body of chalk, the character of which is so well known as not to need describing. It is vulgarly called marl, in the districts where it is found, and under the impression that such is its character, it has been, and still is employed as a manure. This rock contains nearly eighty per cent. of silica, the balance consisting chiefly of alumina, and oxide of iron; and it is quite probable that diatoms, or some similar organism, forms the bulk of the rock. M. de Sauvage, a French chemist, discovered the same substance in the Department of Ardennes, in precisely the same geological position. The thickness of this stratum varies from ten to sixty feet.

MAN—FRIDAY.—It is quite possible that the idea of Friday being an unlucky day, has its source for the same reason from which it is sometimes known in the United States as "Hangman's Day," and both have probably had for their origin the following cause: At an early period of British jurisprudence, it became an established rule, that any one after being found guilty of willful murder, shall not witness "a second setting sun." In order to modify the rule as much as possible, it became a practice to try persons prosecuted for murder, on a Friday, so that if convicted, Sunday as a "dies non" would intervene, and so give the convicted murderer an additional day to live, and as it was also trusted, would at the same time afford him additional opportunity to make peace with his Maker. It would not therefore be before Monday, which would be the true hangman's day, that such malefactors would be called to expiate their crimes on the scaffold.

A FARMER, Santa Clara.—The extraordinary instance of rapid growth which you name, is by no means extraordinary. The growth of some plants is exceedingly rapid; the leaves sometimes acquiring in a single hour not less than an addition of six or seven times their original weight. D. Desglariere calculated that a turnip-seed does not weigh more than the 14,000 or 15,000th part of an ounce, and that it may increase fifteen times its own weight in a minute. This root has been found to increase 15,990 times its original weight in the course of twenty-four hours.

A CORNISHMAN calls attention to the fact that Professor Rowlandson, in his second article on English Mining Educational Institutions, omitted to make honorable mention of the late Lady Basset, who munificently contributed in the establishment of several mining schools, as well as towards the local museums named, and the School of Mines.

What a Mechanic Should Strive for.

One of the most useful orders of mechanical genius is that which enables the possessor to originate appliances and tools with which to accomplish the odd, and very often peculiar kinds of work, which are frequently presented at the jobbing machine shop. It is not sufficient for one who would aspire to become a thorough mechanic, that he should be merely able to advantageously use all the tools which are furnished him, and when an irregular or odd job is presented, to turn it off by hand or with such tools as may be in present use, and but poorly fitted for the work. He who rests himself upon such a position, is generally one who thinks his duty to his employer or to his trade is merely to labor his regular hours and receive his stipulated wages when pay-day comes. He never troubles his brain to invent machinery to facilitate his manual operations; he leaves all that for his boss or his employer.

The mechanic who acts altogether upon this policy, will never make his mark, and will seldom rise above the drudgery of day labor. Perhaps there may be some excuse for such a course in many cases, where the employer takes but little care or interest in his employes, besides seeing that they make good time, and do the work placed before them in workman-like manner. True, an employer is not entitled in the fullest extent, to the brain-work of his employe. A workman who possesses origination genius, should derive a special benefit from his mental efforts. There should be a degree of equity considered, commensurate to the extra benefit rendered. As a general thing, the workman is not apt to be too exorbitant in his demands, especially when he is properly met by his employer. An encouraging or friendly word is often worth far more than pecuniary compensation, and not unfrequently exerts a most important influence upon the course of the employe.

It is only the patient, industrious and persevering mechanic that makes his mark in the world. He who spends his leisure in frivolous amusements will never leave footprints behind him, which will do honor to himself or benefit or encourage his successors.

It is the crowning glory of the working classes of this country that fully 99 out of every 100 of the patents allowed at Washington are issued to working men—those engaged in the manufacture or operation of workshop machinery. Nearly all our successful inventors are those, who, from their earliest apprenticeship, have been in the habit of devoting their leisure hours to the study of their work, and of the various manipulations in which they have been from time to time engaged. The practical details of the machinery employed in a workshop, should be made a study by every apprentice and other workman in that shop. Such an exercise constitutes the best training for the development of inventive genius; the more so, because complicated mechanisms are frequently brought forward, which in the hands of practical, observing mechanics, may be greatly simplified, and rendered far more available than when originally introduced.

The important truth should be impressed upon the mind of every mechanic, that it is not enough that a machine should have the capacity of doing a certain work, but that it should be so constructed as to do that work in the simplest and cheapest manner. Many a mechanic, working in the humblest capacity, has done himself and the world inestimable service by simplifying and improving tools which have been placed in his hands for service.

It is said that in Nottingham, Eng., a mesh which formerly required sixty motions, is now made with six,—a result brought about by the genius of a common working mechanic. Some twelve years ago, in Mr. Ledger's extensive iron establishment, in

England, a large, and, as was supposed, improved, machine was constructed, under the immediate supervision of the proprietors, for boring locomotive cylinders. It was found, however, to be utterly useless, and was about to be broken up for old iron, when a workman in the shop took it in hand and so improved and simplified it as to render it a most valuable piece of workshop machinery. Most of our readers are familiar with the history of the improvement to the steam engine, by which it was first made automatic in action. Similar instances might be enumerated almost without limit; but quite sufficient reference has been made to encourage the young mechanic, among our readers, to be diligent, persevering and attentive in their calling, to the end that they may accomplish something in their lives beyond the mere performance of ever succeeding daily tasks, which hundreds have done before them. We would say to them;—strive to acquire new ideas; be ambitious to leave foot-prints behind you,—

"Footprints, that perhaps another,
 Sailing o'er life's solemn main,
 A forlorn and shipwrecked brother,
 Seeing, shall take heart again."

Patient, persevering industry, and a mind ever active and alert for improvement, will most assuredly enable you to do so; but without such effort, you can never attain distinction in your calling, or enroll your name upon even the lowest panel in the temple of fame.

Reduction of Antimonial, Argentiferous and Auriferous Ores.

EDITORS MINING AND SCIENTIFIC PRESS: Excuse a mountain pioneer, who has here in the wild mountains, unfortunately, no sufficient resources to answer the following questions, and please inform and enlighten him through the MINING PRESS:

1. What is the ratio of zinc added to lead in order to desilver it by Parke's process?
2. If auriferous lead is treated with zinc, how much of the gold is retained in the lead? Has anybody made experiments in this respect, and who?
3. Can an alloy of lead, antimony and gold, (our galenas always contain a considerable percentage of Sb S³) be treated by the Parke's process?
4. Do any of the recent writers give an exhaustive answer to my questions? Who is it, and where can I find it?

By these questions you can easily see what I am aiming at. As the chlorination process is, under the present circumstances, impossible in Montana, and the pan process scarcely gives satisfactory results, I see no other means than smelting our rich, concentrated pyrites with galena, which is plentiful in a large number of our gold veins, and almost everywhere to be found, and nearly always rich enough in silver to benefit it by smelting and cupellation. (The poorest specimen under my observation contained thirty ounces per 2,000 lbs. of undressed ore).

But where the amount of concentrated iron pyrites in a limited time is not large, a cupelling furnace would scarcely be necessary as the quantity of lead would be small; and if the Parke's process would give good results, the latter would be preferred.

If you would be kind enough to answer my questions, I would show my gratitude by giving you such information about Montana as I should find interesting for the California mining public. As yet, little has been done here, and scarcely anything new could be recorded of our mining matters. Respectfully Yours,

EMIL HENKE.

Ram's Horn Gulch, Madison County, Montana Territory, Feb. 15th, 1868.

REPLY.

First.—The practice pursued on a large scale in Parke's process is to melt six or seven tons of argentiferous lead in a cast iron pot, adjoining which is placed a smaller one for fusing the zinc to be afterwards employed. When the zinc has melted, it is added to the lead in the proportion of from one and a half to two pounds for each oz. of silver contained in the lead to be operated upon. The alloy is then well stirred for from one to two hours. The fire is subsequently withdrawn, and the metal allowed to rest until a scum forms on the top, which, when it has reached a certain thickness, is

removed in the same manner as the crystals of lead in Pattinson's process. The remaining lead is then ladled by means of a gutter into a reverberatory furnace, where it undergoes a process akin to that of softening hard lead, when so caused by the joint or separate presence of copper or antimony; in the case in question, however, zinc with some silver, is the scum which it is anticipated will form on the surface, mixed with some lead. The latter is removed by a method something similar to liquation, an inclined pot in place of a furnace being used for this purpose. The lead so obtained is rich in silver. The residue containing the zinc is distilled in the ordinary manner, by which half the weight of zinc originally employed is obtained. The residue remaining in the distillation pots is always found rich in silver, and ought to be saved until a quantity is collected.

Second.—We cannot give you any positive information on this point; but we have a confused recollection that within the past few months we have seen it somewhere stated that the Parke's process has been employed with complete success in Mexico, with galena or fugo ores, containing gold as well as silver.

For reasons adduced in replying to query three, we consider the presence of antimony rather to promote the surface concentration of the noble metals present. It is probable that a larger proportion of zinc would be serviceable in Parke's process where gold is present, than where silver only is sought.

Third.—Without being able to afford you information of a direct, practical character, we may state that there does not *a priori* appear any reasonable ground for believing that Parke's mode would prove unavailing in the case of gold. Silver and gold, either alone or combined, unite readily with zinc or antimony, and we suspect that antimony would rather promote, when present, the light scum which is formed on the surface of the metal treated by this method, in which scum will be found concentrated the precious metals. We suspect that antimony being present would facilitate this part of the process, but it is equally, perhaps even more probable, that in the subsequent operation of separating the gold and silver from the base metals, the antimony may cause very considerable inconvenience.

Fourth.—No exhaustive treatise has so far been published on the subject which you propound.

We will forward you an extra, as requested, and a letter by mail containing an article from a former number, which may be of service to you.

A GREAT WORK PROJECTED.—It is reported that a company is now being organized in this city, the object of which is the building of a suspension bridge across the entrance to our harbor,—from Lime Point to a place near Fort Point. The plan has been reported feasible by competent engineers. The distance is about one mile. An immense pier, 200 feet wide, and rising to the height of 175 feet above the surface of the water, will be placed in the center. The largest ships can pass on either side. A double railway will belaid upon the bridge, and a light house will occupy the central pier. At each end, the company proposes to erect a revolving monitor tower for the use of the United States. The scheme is a magnificent one, and we hope to "see it" completed.

INTERESTING AND VALUABLE INFORMATION.

The following "essay" was, it is said, handed in to the examiners by an Oxford candidate, a few years since: "Coal is a black mineral. The way they produce it is this: First they dig a large pit in the earth. Then they cut down a quantity of timber and put it in the pit, and cover the whole with peat. Then they burn the timber. After it has been burnt once it becomes charcoal, and out of the charcoal they make oxygen gas, with which we light our streets and houses."

Editorial Correspondence.

(Continued from Page 162.)

THE AMERICAN WHIP COMPANY.

More horse-whips are manufactured in Westfield, Mass., than in all other parts of the United States combined. Its peddlers of "whips and cigars" are known the Union over. It is probably the only town in the world where the business has ever centered. (We be unto it when the spirits of the dumb beasts, from Baalam's ass down to coming generations, shall rise against it.) In European countries every burgh is supposed to have its local whip-makers. Until within a few years past, but little machinery was employed in this manufacture. Now a large portion of the work that was slow and difficult by hand, is rapidly wrought out by machines.

The largest establishment in the trade is the American Whip Co., who have a three story brick building in Westfield, 45x120 feet, accommodating 125 girls and workmen. Besides this, a large number are employed who braid, button, work names, etc., at their homes about the village. In addition to this, the company has a large manufacturing branch in the State Prison at Charlestown, and large wholesale stores in New York and Cincinnati.

The company was incorporated in 1854. Present officers, Henry J. Bush, President; Reuben Noble, treasurer. Capital stock, \$100,000, mostly held by a few individuals. Its assets amount to some \$180,000. The raw material and finished work on hand frequently amounts to \$75,000 or \$100,000. Liverus Hull (present Mayor of Charlestown) is manager of the works in the prison. About 100 prisoners are employed. Many are ingenious. As a whole they appear like a strong band of workers. Destructiveness—a qualification for driving work—prevails as a phenological development; yet one naturally wonders why so many genial, intelligent faces are among them.

The whip most in use is made by taking a square piece of whalebone, tapering gradually to the tip. This is surrounded by split pieces of rattan, tapering from butt to tip, glued on and held together by twine till solid. The stock is loaded with a lead plummet. It is then planed true, covered with strong paper, and sometimes with buckskin or water-proof material; then plaited with linen or cotton thread, and mounted with buttons or ferrules, and varnished. To facilitate this process several attractive machines have been devised by Mr. Hull, whose inventive genius accords fully with his large ideality, continuity, constructiveness, and active temperament. One machine cuts a section of rattan, four or five feet in length, obliquely, as true and as easily as a knife would split it straight. Another planes the whip to its true form. To accomplish this two rasp-like surfaced planers, about 7-inch face and 3-inch diameter, are set perpendicularly side by side, operating independently of each. One revolves to the right, the other to the left; while one moves up the other works down. This peculiar motion obviates the necessity of a strong tension for revolving the whip as it passes between the planers.

The plaiting machines are ingeniously contrived with rotating bobbins, which work rapidly with little power, regulate themselves to the varying size of the whip, and stop instantly on the breaking of a thread, or other derangement. But the most novel of all is the plaiter, which covers the large part of the stock, and forms at the same time a serpentine corrugation, or stitch around the handle. In this the bobbins are horizontal, and rotate on the inner circle of the machine. A circle of 3-inch gear wheels encompasses the frame. Two bobbins are attached on the inside of each gear, one above and one below the center. At every half revolution this gear wheel and its attachment opens clearly through its center, admits the passage of the threads

which forms the serpentine stitch, and closes into a perfect gear; at the same time it imparts a half revolution to the two bobbins, forming the necessary twist in the stitch. This automatic opening and closing of a perfect operative gear, with the drawing through of the thread at the opportune moment, appears like a perfect embodiment of life. We believe it constitutes an entire new mechanical movement. Mr. Hull has other patented improvements which have been a source of advancement in this trade, which we have not time to mention.

IMMENSE IRON PLANING MACHINE.

The machine shops of the Charlestown (U. S.) Navy Yard are a model of good order and fine mechanism. Mr. Seth Wilmarth, master mechanic, has had large experience in his calling, and makes good use of the same, in connection with native ability and energy. His works here, in comparison with operations in other establishments conducted by strictly military men, show the foolishness of our Government in putting army officers in charge of mechanical shops. If the Government, like individuals, would gain wisdom by experience, it would long since have avoided many expensive blunders.

Mr. Wilmarth is now completing a planing machine, claimed to be considerably the largest in the world. It is calculated to take a chip half an inch thick, four inches in breadth, and plane a piece eighteen feet square by thirty-eight feet long on five surfaces without moving,—the top, two sides and two ends; height of frame 32 feet; cross-bar 28 feet long by 4 feet wide, 3 feet 6 inches deep, weighing 28 tons; platen 15 by 17 feet, 3 feet deep; screw 9 inches diameter, 42 feet long, for moving platen; main gear wheels 6 feet diameter, 10-inch face, 3-inch pitch. The cross-head, with tool-holder and fixtures, weighs 40 tons, and can be readily raised by a man with the strength of one arm. A single casting weighs 48 tons. Total weight of the machine, 260 tons. A 6-inch crew carries the tool along the cross-head. The latter moves vertically for cutting slots, etc. Every mechanic knows the difficulty of moving and readjusting large pieces for planing different sides, and besides the delay and expanse, the next to impossibility of getting a perfect angle,—hence the economy of this tool.

STEAM HAMMERS.

We should judge there were over twenty direct-acting steam-hammers in operation throughout the forge shops, with cylinders apparently from 5 to 30 inches in diameter. A hammer, with a 12-inch face, was raised and lowered by the engineer, fast or slow, apparently under as easy control as his own arm. It will forge a steamer-shaft or a horse-shoe nail.

The Charlestown Navy Yard is by far the most extensive in the United States, and we regret the lack of time for further mention of it.

THE FLORENCE SEWING MACHINE WORKS.

This is the leading manufactory in the village of Florence, a place of recent growth, about three miles from Northampton, Mass. Its buildings occupy some two acres of ground. The entire manufacture of these celebrated machines is carried on here. In brisk times, from 250 to 300 men are employed, turning out from 1,000 to 1,200 perfect machines per month. The company provides all the materials and permanent tools used, but a large proportion of the labor is contracted for, by departments, and paid for by the piece, upon its being inspected and accepted by the company's superintendents and experts. By this method many hands and brains are working for self-interest in perfecting machinery and new devices for improving and expediting the work. Such a system of labor-saving machinery (which adds to the perfect uniformity of all the fine and small parts,) is rarely to be found. The best of material is used in

the construction of the working parts of every machine, and no piece is accepted, unless upon close examination it stands a perfect test.

The company's outlay, in order to manufacture perfect machinery economically, has certainly been immense; but their success seems to have more than justified the liberal outlay.

The "Vincent Binder," a Californian invention, is made here, special machinery having lately been prepared for their manufacture on an extensive scale. It is attached to the Florence machine, and is said to be in good favor. Mr. Vincent is an old resident of Stockton. The Florence machine is decidedly novel and ingenious in construction; in which character it is protected by twelve patents.

We had the pleasure of meeting several officers and shareholders of the company, gentlemen of straight-forward business qualifications,—like their excellent San Francisco agent, Mr. Samuel Hill, a native and former highly esteemed citizen of Northampton.

SILK THREAD MANUFACTURE.

There are several manufactories of this article in Florence, Mass. We visited that of the Nonetuck Silk Company, with the assistant superintendent, Mr. A. G. Hill, a relative of Samuel Hill, agent for the Florence Sewing Machine in San Francisco. The raw silk is taken as imported from China, and brought out into even threads of various degrees of fineness. It is then colored to any shade required for the market. Notwithstanding silk is an article which takes colors remarkably well, choice coloring is an important item in competing for trade. Owing to the wax and unevenness in the raw material, there is about 25 per cent. loss in weight in manufacturing. The stock is imported at from \$7 to \$10 per pound,—a reduction of \$5 or \$6 from prices during the war.

A. T. D.

NORTH AMERICA

Life Insurance Company.

Usual Restrictions on Occupation and Travel

ABOLISHED!

Policies of this Company are guaranteed by the State of New York, which is true of no other Company on this Coast.

The most Responsible and Liberal Company in the World!

J. A. EATON & CO.,

Managers Pacific Branch, 302 Montgomery st.
20v14n5p SAN FRANCISCO.



THE FLORENCE

RECEIVED THE HIGHEST PREMIUMS

At all the most important Fairs held in the United States in the year 1867. Gold Medals at the American Institute Fair, New York; Mechanics' Association Fair, Lowell; Maryland Institute Fair, Baltimore. Highest Premium at the New York State Fair, Buffalo, and at the Great New England Fair, Providence. At the Fairs held on the Pacific Coast, this machine has taken

Every First Premium

Awarded on Family Sewing Machines in the LAST FIVE YEARS. It there is a Florence Machine within one thousand miles of San Francisco, that is not giving entire satisfaction, if I am informed of it, it will be attended to without express charge or expense of any kind to the owner.

SAMUEL HILL, Agent.

11v16m

111 Montgomery street, San Francisco.

Hallidays' Insurance Company—
OFFICE IN THE BUILDING OF THE
CALIFORNIA SAVINGS BANK, California
street, one door from Sansome street.
FIRE AND MARINE INSURANCE. 10v14n9pqr

KNICKERBOCKER

Life Insurance Company,

OF NEW YORK.

Assets, - - - over \$3,000,000.

Number of Policies issued in 1867, 10,300.

Amount insured, - - - \$81,375,071 00.

POLICIES ISSUED AT ONCE,

On receipt of Application at the San Francisco Branch Office, without referring to the Home Office at New York.

Policies Paid in Gold Coin or Greenbacks,
at the option of the person insuring.

[Extract from report of the Home Office, for Dec. 1867.]

"The Company's history for the past fifteen years shows favorably, and it standing to-day ranks in among first class societies. It has carried out in good faith every contract made by it, never emitting a Southern claim during the war, while it is well known that many of our largest companies repudiated their Southern risks at the commencement of our National struggle, thereby increasing their assets. This honorable dealing of the Knickerbocker in the past, is a pledge of its future good faith."

Pacific Branch Office, 430 Montgomery Street,
San Francisco.

GEO. T. SHIPLEY, M. D., Manager.

Agents wanted through city and State, and Pacific Coast.
6v16-3m5p

Pacific Chemical Works.

Nitrate of Silver.

Messrs. Falkenau & Hanks—Gents.—I have subjected the Nitrate of Silver, manufactured by you, to a thorough trial, and have found the same in every respect equal to the best makes I have used heretofore, both for sensitizing paper, and the silver bath. Respectfully, Wm. S. HEW.

Messrs. Falkenau & Hanks—Gents.—I have subjected the sample taken from your Nitrate of Silver to a thorough analysis, and find it to be chemically pure, not containing the slightest trace of any impurities whatever. Respectfully, THOS. PRICE.

Messrs. Falkenau & Hanks—Gents.—We have used the Nitrate of Silver manufactured by you, and find by actual experience that it is in every respect equal to the best makes we have used heretofore, both for sensitizing paper and the silver bath. Respectfully,

READLEY & RULOFSON,
Photographers, 429 Montgomery street.
Manufactured by the PACIFIC CHEMICAL WORKS,
FALKENAU & HANKS,
Laboratory, Sixteenth street, near Folsom. Office, 619
Montgomery street, San Francisco.

PACIFIC

Rolling Mill and Forge Co.,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES OF
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames.

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL and FORGE CO., Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron. 6v143m5p

A Book for Every Miner and Scientific Man.

JUST PUBLISHED,

KUSTEL'S NEW WORK,
CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arsenurets, and Gold and Silver Ores generally.

Price, - - - - \$7.50

A liberal discount to the Trade. For sale by the Booksellers.

Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,
Office of the Mining and Scientific Press, 505 Clay street,
16v11f SAN FRANCISCO.

DR. FONDA'S
San Francisco Eye Infirmary.

Permanently established for the treatment of all diseases of the Eye. Dr. F. was for seventeen years principal of the Lafayette (Ind.) Eye Infirmary. F. W. FONDA, M. D., Surgeon in Charge. Office, 402 Montgomery street, opposite Well, Fargo & Co's. 4v15-13p

Machinists and Foundries.

PALMER, KNOX & CO.,

Golden State Iron Works,

Nos. 19, 21, 23 and 25 First Street,
SAN FRANCISCO.

MANUFACTURE ALL KINDS OF

MACHINERY.

TEAM ENGINES AND QUARTZ MILLS

DUNBAR'S IMPROVED

Self-Adjusting Piston Packing.

Requires no springs or screws; is always steam tight;
without excessive friction, and never
gets slack or leaky.

WHEELER & RANALL'S

NEW GRINDER AND AMALGAMATOR

HEPBURN & PETERSON'S

AMALGAMATOR AND SEPARATOR,

Knox's Amalgamators,
WITH PALMER'S PATENT STEAM CHEST.Superior for working either GOLD OR SILVER ORES, and
is the only Amalgamator that has stood the test of seven
years' continual working.

Genuine White Iron Stamp Shoes and Dies

Having been engaged for the past ten years in quartz
mining, and being conversant with all the improvements,
either in mining or milling, we are prepared to furnish, at
the shortest notice, the most perfect machinery for reduc-
ing ores, or saving either gold or silver. 13v10y-12

WILLAMETTE IRON WORKS,

PORTLAND, OREGON.

Steam Engines, Boilers,

SAW AND CRIST MILLS,

MINING MACHINERY, WROUGHT IRON SHUTTER
WORK, AND BLACKSMITHING IN GENERAL.

Corner North-Front and E streets,

18v13-1y

One block north of Couch's Wharf.

UNION IRON WORKS,

Sacramento.

WILLIAMS, ROOT & NELSON,

MANUFACTURERS OF

CROSS PATENT BOILER FEEDER,

STEAM ENGINES, BOILERS,

And all kinds of Mining Machinery.

Also, Hay and Wine Presses made and repaired
with neatness, durability and dispatch.

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old cylinders, manufactured
to order.

Front Street, between N and O streets,

14v11 SACRAMENTO CITY

GLOBE

Foundry and Machine Shop,

STOCKTON, CAL.

KEEP, BLAKE & CO.,

MANUFACTURERS OF

Quartz, Saw and Grist Mill Irons, Steam

Engines, Horse Powers,

Mining and Irrigating Pumps, Car Wheels, Horriek Irons,
House Fronts, Iron Fencing, Balcony Railings, etc.,
at San Francisco prices. Orders solicited
and promptly executed.

13v13-1y

GEORGE T. PRACY,

MACHINE WORKS,

Nos 109 and 111 Mission street, between Main and Spear,
SAN FRANCISCO.

STEAM ENGINE, FLOUR AND SAW MILL

And Quartz Machinery, Printing Presses,

—AND—

MACHINERY OF EVERY DESCRIPTION MADE AND

REPAIRED.

Special attention paid to Repairing. 13v13-1y

SAN FRANCISCO

Foundry and Machine Works,

N. E. Cor. Fremont and Mission streets,

Manufacturers of

Marine and Stationery Engines

Quartz Machinery, Saw, Flour and Sugar Mills, Mining
Pumps, Hoisting Gear, Agricultural Implements, etc.

—ALSO—

Wine, Cider, Cotton and Tobacco Presses
of the latest Improved Patterns.

STEAM ENGINES AND BOILERS,

Of all sizes, constantly on hand; Quartz Mill Shoes and
Dies warranted to be made of the best white iron.

Dunbar's Improved Self-Adjusting Piston

Packing, requires no springs or screws; is always steam
tight; without excessive friction, and never gets slack or
leaky.

MACHINERY OF ALL DESCRIPTIONS

Bought, sold, or exchanged. Bolt Cutting and Castings at
the lowest market rates.

6v11-1y

DEVOE, DINSMORE & CO

LEWIS COFFEY.

J. S. HADSON

LEWIS COFFEY & RISON,

Steam Boiler & Sheet Iron Works.

THE only exclusively Boiler Making establishments on the
Pacific Coast owned and conducted by Practical Boiler
Makers. All orders for New Work and the repairing of Old
Work, executed as ordered, and warranted as to quality.
Old Stand, corner of Bush and Market streets, opposite
Oriental Hotel, San Francisco.

Miners' Foundry

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MACHINE WORKS

Nos. 245 to 255 FIRST STREET,

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HOWLAND, ANGELL & KING,

PROPRIETORS.

Manufacturers of Machinery for

QUARTZ MILLS.

SAW MILLS,

POWDER MILLS,

FLOUR MILLS,

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Steam Engines of all Kinds.

Amalgamators of all Kinds.

MINING PUMPS,

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OIL WELL TOOLS, ROCK BREAKERS,

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Machinery and Castings of all kinds, either

of Iron or Brass.

Boilers and Sheet Iron Work in all it

Branches.

Shoes and Dies of White Iron, manufactured
for and imported by us expressly for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.Russia Iron Screens, of any degree of fineness
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.

W. H. HOWLAND

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Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Moore's Grinder and Amalgamator, Brodie's

Improved Crusher, Mining Pumps,

Amalgamators, and all kinds

of Machinery.

N. E. corner of Tehama and Fremont streets, above How

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BAURHYTE, McAFEE & SPIERS,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Fine or Tubular Boilers, with plain circular or spiral

courses. Upright or Horizontal Boilers, Locomotive and

and Marine Boilers, and Wrought Iron Tanks of every de-
scription.Hydraulic Pipe supplied at reasonable rates. In or-
dering, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to
be used.Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in re-
pair with promptness.To Boiler Makers and Machinists in the In-
terior.—The firm is prepared to furnish estimates of
Boilers, supply new Heads, drilled and punched, and attend
to the selection and forwarding of Iron for Boilers, Pipes
and other purposes.Plans, Drawings and Specifications.—The firm is
prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their inventions, giving them the bene-
fit of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their inventions. 1v16f

J. NEWSHAM.

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SOUTH BEACH IRON WORKS,

Near corner of King and Third streets, San Francisco.

MARINE ENGINES,

AND ALL KINDS OF

MACHINERY FORGING.

All kinds of Ship-smithing and Mill work manufactured to
order. Jobbing of every description promptly attended to.
All work done guaranteed. 13v14-1y

CALIFORNIA

TOOL AND FILE FACTORY.

Blacksmith and Machine Shop.

No. 38 Fremont street, between Market and Mission, S. F.

Job Grinding and Polishing done at shortest notice.

Special premium awarded at the last State Fair, Sac-
ramento. 4v15-4y

J. WEICHHART.

LINCOLN IRON WORKS,

No. 51 Beale st., bet. Market and Mission.

D. & W. FOURNESS, Prop'rs.

STEAM ENGINES,

Flour and Sawmills, and MACHINERY of all descriptions
made and repaired at shortest notice.Particular attention paid to repairing Reynolds's Cut-off
6v16y

CALIFORNIA BRASS FOUNDRY.

No. 125 First street, opposite Minna,

SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE.

J. P. CALLAGHER.

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9v13-1y

I. H. SMALL,
MACHINE SHOP,

BUILDER OF

Steam Engines, Sawmills, Mining Machinery,
Saw Arbors, Wood Cutting Machinery,
and Wood Planers.
Repairing of all kinds done with promptness and dispatch.
Gears of all kinds cut at short notice, corner of
Market and Beale st. San Francisco. 6v15-3m

JAMES MACKEN,

COPPERSMITH

No. 226 Fremont st., bet. Howard & Folson.

All kinds of COPPER WORK done to order in the best
manner. Particular attention paid to Steamboat, Sugar
House and Distillery work.

Repairing promptly and neatly attended to. 13v11

To Foundrymen and Blacksmiths.

LUND LEIGH AND GUMPERLAND COAL, IN ANY

quantity, sacked and shipped to any part of the coun-
try, by
JAS. R. MOYLE, Coal Dealer,
413 and 415 Pacific street,
bet. Sansome and Montgomery,
San Francisco.

2v15-3m

Japanning!

EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS

of Hardware and Carriage Work. Damaged Goods re-
paired, Sewing Machines Japanned and ornamented.
513 Fourth Street, between Bryant and Welch, San Fran-
cisco. 5v16-3m

N. A. BALL & CO., Prop'rs.

California Steam Navigation

COMPANY.

Steamer CAPITAL.....CAPT. E. A. POOLE

" CHRYSOPOLIS.....CAPT. A. FOSTER.

" YOSEMITE.....CAPT. W. BROWLEY

" CORNELIA.....CAPT. W. BROWLEY

" JULIA.....CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF

at 4 o'clock P. M. EVERY DAY (Sundays excepted), one

for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, Chico, and Red Bluff.Office of the Company, northeast corner of Front and
Jackson streets.

13v12

B. M. HARTSHORNE,
President.

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER

Black Diamond, in 1 lb. canisters.

do do in 5 lb. canisters.

do do in 10 lb. kegs.

Hunter's Pride, in 1 lb. canisters.

do do in 5 lb. canisters.

do do in 10 lb. kegs.

do do in 25 lb. kegs.

Pacific Mills River Shot, in 1 lb. canisters.

do do in 5 lb. canisters.

do do in 10 lb. kegs.

do do in 25 lb. kegs.

do do in 50 lb. kegs.

do do in 100 lb. kegs.

do do in 250 lb. kegs.

do do in 500 lb. kegs.

do do in 1000 lb. kegs.

do do in 2500 lb. kegs.

do do in 5000 lb. kegs.

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do do in 1000000000000000 lb. kegs.

PO-PO-AGIE.—This is the name of a valley described by the *Sweetwater Mines*, situated thirty miles northeast of the Shoshone district, in the mines from which that journal derives its name. Its length is fifteen miles, with an average breadth of about five miles. Eight miles above its junction with the South Fork of Wind river, the Po-po-agio river forks, having a valley between the forks that for beauty is seldom equaled. The soil is a black loam, capable under cultivation, of producing the very finest crops of cereals, and well adapted to fruits of certain kinds, for we found last summer strawberries, raspberries, black, white, and red currants, wild cherries, etc., in greater abundance than we have seen anywhere else in this western country. This valley produces the finest quality of native grass we have ever seen; if we should say how high we have seen it grow, no person other than those who have been into the valley would credit our story. The hillsides are covered with a great abundance of bunch grass, and the mountain sides with a heavy growth of pine and fir timber. This valley, like all the adjacent ones, is a perfect paradise for game. Herds of buffalo, elk, antelope and black-tailed deer can be met with in a day's hunt, with an occasional grizzly and cinnamon bear thrown in.

Little Po-po-agie valley and river is situated ten miles nearer the mines, and although not so extensive, contains several thousand acres of excellent tillable land and possesses the same characteristics as Big Po-po-agie valley. Large cottonwood trees abound on the banks of both streams. The rivers are said to be full of fine fish. Large deposits of coal have been discovered in Po-po-agie valley—a circumstance of no slight importance to a quartz mining community, when fuel constitutes one of the principal items in the bill of expense in the reduction of the ore.

DIFFERENCE IN WATER FOR MANUFACTURES AN IMPORTANT MATTER.—The *Economist* says that manufacturers often overlook the importance of taking note of the character of the water which they use. Cloths, ales, dyes, etc., are especially dependent on the water employed, and when it is in contemplation to build works upon a certain stream, a chemical analysis of its water should be first made, in order that it may be compared with that of those localities where the same manufactures has been a success. We quote:—"We have heard of a leather manufacturer in the north of England, whose leather was so acceptable that ultimately his entire product was taken by the London market. Thinking that by removing about 300 miles nearer the metropolis he could save the heavy expense of transportation, the manufacturer established his works within a few miles of London, taking with him his principal workmen, and preparing his leather in precisely the same manner as in the north. Within twelve months his leather lost its reputation, and when it was too late he found that he had overlooked the virtues of the northern water."

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75,000 LBS. IMPURE COPPERAS-SULPHATE

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To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE in Mining and doing business connected with Mining Operations, offers his services to parties wishing to purchase mines, to examine and report upon them, to buy, report upon the titles of any mine offered for sale, and to transact any business connected with mining operations in this District. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address: JAMES DELAVAN, Lone Pine, Inyo Co., Cal. 4v16f

CARD.

THE UNDESIGNED, SINCE DISPOSING OF HIS Gallery on Montgomery street, has seldom been in the street without being asked where the best photographs were taken. Now, for the benefit of his friends and the public generally, he would recommend them to go to the COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY, No. 24 Kearny street, now owned and occupied by Messrs. H

WASTE OF MINING PRODUCTS.—The following is from a communication by W. L. Rickard, F. C. S., to the *London Mining Journal*: "I am surprised at the indifference with which the loss of so much wealth is regarded, when its recovery may be effected by the employment of a moderate amount of capital, under the direction of some of the skill and talent so abundant in England at the present moment."

One of the most glaring instances of this wanton waste is that which has been going on during the last eight years, and still continues at the Comstock lode, in Nevada, where from one-third to a half of the precious metals (say one and a half million sterling) is lost in the form of slimes and tailings, which, by a proper system of working, can be recovered without any of the ordinary mining risks, a few furnaces, buddles, and amalgamating machines being all the apparatus required, after an economical system has been organized for their collection.

Some of the most far seeing amongst the mill owners have commenced saving this valuable refuse, and at the present time many hundred thousands of tons are collected, and may be purchased for a nominal price; but as the rich slimes (worth from 8¢. to 12¢. per ton), the most profitable proceeding would be to collect the slimes as fast as produced, and subject them to special treatment, while the tailings could be concentrated by means of buddles, or any apparatus for this purpose; the gold and silver in them being associated with the sulphides of iron, copper and lead, while in the slimes the silver exists chiefly as chloride and the gold free.

It may appear incomprehensible that an energetic and long-headed people like our American cousins, should permit this extraordinary waste to go on, but the fact is they are so bent on working large quantities of ore in the shortest possible time, to keep pace with the enormous yield of the mines, that so long as a margin of profit is shown by the present system they will not expend addition capital to recover their waste.

CONSUMPTION OF SMOKE.—G. Alston thus describes his improvement in this direction: I admit air on the top of the fuel, above the fire-bars, from the front of the furnace; the draft being regulated by a suitable damper or sliding door at which the fuel is introduced. The ash-pit is kept closed at all times, except when removing the cinders, the damper being closed at such time; the back of the furnace chamber is also closed by a plate or partition. In this manner the fresh air is forced to pass down through the fuel and fire-bars, drawing with it the smoke and flame, and so effecting its almost entire combustion, the smoke afterwards passing away through the flues as usual. The fire-bars I make of fire-clay, in order to withstand the great heat produced by the down draught.—*Colliery Guardian*.

PAPER BOAT.—The *Tribune* says: Walter Brown, of Portland, has brought home a new paper boat of the Waters' patent, from a model of his own. This boat is 31½ feet long, 12 inches wide, and weighs but 22 pounds. The lightest wooden boat ever previously built of similar dimensions, weighed 41 pounds. The most singular part of the matter is that the paper boat is more than four times stronger than one of wood. All of it, save where the sculler sits, is gas-tight, so that in the event of a race, sufficient gas may be taken into it to reduce its weight to eight pounds.

PAPER.—There are in the United States 530 paper mills. The annual production of paper in Europe is 8,956,000 cwt., valued at £15,005,000. The improved paper mills working continuously for a whole year would manufacture 62,560,000 sheets, which if laid side by side would extend to a length equal to that of the diameter of the earth.

THE PEDESTRIAN.—Payno, the man who has undertaken the feat of walking from New York to San Francisco, in 150 days, has got as far as St. Joe, Missouri. On the route he delivers lectures at the important points, and besides this is taking copious notes for a book.

BLEACHING PETROLEUM.—Petroleum is bleached by shaking it repeatedly with oil of vitriol, and then with a strong solution of caustic soda, allowing the oil to separate each time. A subsequent distillation will greatly improve it.

COAL IN COLORADO.—Mr. Sartell is developing a vein of coal about three feet thick, on Deer creek, fifteen miles above Denver. The vein is opened about one mile from the Platte river, and the coal is said to be of excellent quality.—*Denver News*, Feb. 26.



Office Pacific Business College and Telegraphic Institute.
Mechanics' Institute Building, Post Street. (Exterior View.)
A. de LEO de LAGUNA. [10v15-8m] JAMES VINSONHALER.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

NEWSPAPERS—MAILED AS FOLLOWS:
Bremen, by Bremen mail—2 cents each.
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Prussia, Austria and German States, by Bremen and Hamburg mails—3 cents each.
Lunenbourg, by Bremen mail—3 cents each.
Lunenbourg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.
Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.
Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—4 cents each.
Italy, by Bremen or Hamburg—5 cents each.
Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen and Hamburg mails, via Trieste—3 cents each, and 2 cents per ½ ounce.

PERIODICALS, ETC.
Bremen, by Bremen mail—1 cent per ounce.
Hamburg, by Hamburg mail—1 cent per ounce.
Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.
Lunenbourg, by Bremen mail—1½ cent per ounce.
Lunenbourg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.
Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.
Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per ½ ounce.
Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per ½ ounce.
Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.
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LAND SLIP AT NAPLES.—A terrible event occurred at Naples on January 28th. Part of the cliff of Pozzofalcone became loosened, and came down with a crash,—burying a number of houses in the ruins. It is feared that seventy or eighty lives were lost; although as the buildings were partly *cafes* and wine-shops, which are more or less filled at that time,—8 o'clock P. M.,—with stragglers and transient customers, the number is not precisely known. A considerable number made their escape through fissures in the walls of buildings which partially resisted the crush. All Naples flocked to the spot, and the excitement was intense. The military were set at work to clear the ruins, and extricate the bodies of the dead and of the living. An omnibus full of passengers, which was passing at the moment, was overwhelmed. Two of the occupants were Americans. The house which Bayard Taylor occupied was buried beneath the wreck of three others which were situated farther up. Fortunately Mr. Taylor and family had left it a few days previous, for a visit to a New York gentleman who had a house in Sorrento.

CHAMPAGNE FROM PETROLEUM.—The Portland (Me.) *Star* says that a sparkling wine is now made from bedzole, which is sold as champagne. Pea nut coffee, and turnip cider, are thrown in the shade by this new swindle.

ESTABLISHED [MAY, 1860.]

VOLUME SIXTEEN

—OF THE—

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COMMENCING JANUARY, 1868.

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Drawings of Monks made for parties applying for patents in Washington or London. mar23-1t.

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street,
SAN FRANCISCO.
2v15-1qy

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Examiner of Mineral Ledges, Mines and Mining Machinery; Drawings given, and Manufacture supervised, for Pumping, Hoisting, Crushing, Separating and Reducing Appliances, by Steam, Water, Fire, and Chemicals, throughout manipulations.
Assayer of Mineral Compounds. For simple assay, \$5; Qualitative for all, \$10; Correct total Quantitative, \$20. Advice, as to the best method, and instructions for working Refractory Ores. Send one-half ounce of unbroken rock.
☞ Practical Lessons in Assaying, by Blowpipe, Scrofula, or by Chemicals. Ledges of intrinsic value for gold, silver, copper, and lead, disposed of for development by capitalists. 8v16-3m

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IN THE

Chlorination Process!

Parties wishing to learn the

Working of Sulphurets

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CHLORINATION PROCESS,

Can have an opportunity of doing so by applying to the undersigned, who are prepared to give practical instruction at reasonable rates. Apply to

JOHN AGRELL,
3v15-3m Jackson, Amador Co., Cal.

College of California.

Department of Chemistry,

UNDER

PROF. W. B. RISING.

The Laboratory has recently been fitted up so that each student will be supplied with a set of Chemical Reagents at his own desk.

The Course of Instruction will include a thorough drill in Qualitative Analysis, and advanced students will be furnished every convenience for Quantitative Analysis.

Attention will be given to the detection and separation of poisons.

Also, instruction in the Assay of Gold, Silver, Copper, Lead, Mercury, and other Ores.

Students from abroad, prepared to proceed with the class in the studies of this department, may be admitted on application to the Professor in charge. 5v16tf

Postage.—The postage on the MINING AND SCIENTIFIC Press to any portion of the United States is twenty cents per annum, or five cents per quarter, payable in advance at the Post Office delivering the paper. Postage free in the city and county. Foreign postage (with few exceptions) two cents per copy, prepaid. To Bremen and the German States (marked via Bremen and Hamburg line), three cents per copy, prepaid. Single copies to an address in the United States, two cents.

Order Bussey's Combination Burglar and Powder-Proof Keyless Lock!

REASONS WHY.

- 1st. It is the best Combination Lock known.
- 2d. It is impossible to pick it.
- 3d. It can be subjected to over half a million changes, and when run by a burglar, he is no nearer entrance than when he began.
- 4th. It has no key to lose.
- 5th. The more it is used the better it is liked.
- 6th. It has no signs, letters or figures, on its face.
- 7th. It is the simplest to understand.
- 8th. It is impossible to open it without knowing the set.
- 9th. It is least possible to get out of repair, as any one will be convinced on examination.
- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair.

Options of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA,
San Francisco, May 24, 1896.
Recently, two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way meet our fullest approval.
They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks.
We deem the lock entirely burglar-proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find it difficult in either opening or closing it, nor in changing its combinations, which may be made almost innumerable.
As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it.
WM. H. TILLINGHAST, Sub Manager.

We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several to Vaults and Safes, to entire satisfaction to parties interested.
KITTREDGE & LEAVITT,
Pioneer Iron Works, cor. Fremont and Market sts.

SAN FRANCISCO, May 6, 1897.
I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safes and Vaults in every other respect as good as any other improved combination lock which I am acquainted with.
JOHN R. STEVENS,
Vault Manufacturer, Oregon street.

JACKSON, April 27, 1897.
I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:
1st.—Because it is impossible for either burglar or expert to pick it.
2d.—The lock being constructed without a key-bolt, it cannot be blown to pieces with powder.
3d.—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.
R. CORNER.

Attested by J. C. SHEPMAN, County Clerk.
JACKSON, April 27, 1897.
The undersigned, Treasurer of Amador County, do hereby certify that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's safe. I have no fear of any by-stander gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe every few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.
OTTO WALTHER.

CALIFORNIA LOCK ALARM.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Powder and Burglar-Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the Press several months since. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable claims asserted in favor of the lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly first fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.—(Mining and Scientific Press, Sept. 29, 1896.)

They are the only rare lock ever invented. Every State and County treasury vault, and every bank and business place should have one.—(Amador Ledger.)

This is a lock in which a series of rotating annular tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, precluding an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair.—(Sacramento Union.)
We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar Proof Lock to be the most reliable lock constructed.
K. MARK & C. FLEMING,
No. 18 Post street.

REFERENCES:

R. CORNER, Sheriff.
O. WALTHER, Treasurer.
W. JENNINGS,
O. H. INGALLS, Supervisors.
L. MC LAINE,

Any good blacksmith can put this lock on safe doors. Dressed or single old locks removed and this placed in their stead, to work out, two, three or four bolts, as the case may be.—(See page 30 in Pacific Coast Directory.)

A dealer blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.
10y14ny11&18,1an

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The Mining and Scientific Press,

Is the Largest and Best MINING AND MECHANICAL Newspaper issued in the United States.

DEWEY & CO.,

Patent Agents, Publishers, Book and Job Printers, 505 Clay Street, San Francisco.

THE MINING AND SCIENTIFIC PRESS is published every Saturday. Each issue comprises sixteen pages (64 columns), and contains more valuable reading matter than any other weekly journal in California.

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THE MINING AND SCIENTIFIC PRESS is now in its SIXTEENTH YEAR, and enjoys a large circulation. It received the following hearty endorsement of the California Miners' State Convention, held at Sacramento, January 17th, 1896:

RESOLVED, That we regard a mining paper or journal of great importance to the mining interests of California, and recommend the MINING AND SCIENTIFIC PRESS, of San Francisco, to the consideration and support of the miners of the Pacific coast.

Terms of Subscription.—One year, \$5; six months, \$3.—In advance. Send no money copies. Remittances may be made by mail at our risk, if parties sending will register their letters, or send money order.

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Pamphlet containing the Law and the Instructions of the General Land Commissioner, post paid, 25 cts. Address DEWEY & CO., Mining and Scientific Press, San Francisco.

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New Mining Advertisements.

Mining Stock for Sale.

Eight shares reserved stock of the SILVER SPROUT MINING CO. will be sold at cost price, if applied for immediately at the office of the Company, 408 California street.

NATHANIEL PAOE, President.

T. B. WINGARD, Secretary.

San Francisco, February 25th, 1898.

1699-4w

Chalk Mountain Blue Gravel Company.—Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of February, 1898, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twentieth day of March, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar21

Oxford Beta Tunnel and Mining Company, Esmeralda District and County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of February, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C. G. Heath	147	10	\$5.00
C. G. Heath	148	10	5.00
C. G. Heath	149	10	5.00
C. G. Heath	150	10	5.00
C. G. Heath	151	10	5.00
C. G. Heath	152	10	5.00
C. G. Heath	153	10	5.00
C. G. Heath	154	10	5.00
C. G. Heath	155	10	5.00
C. G. Heath	156	10	5.00
C. G. Heath	157	10	5.00
C. G. Heath	158	10	5.00
C. G. Heath	159	10	5.00
C. G. Heath	160	10	5.00
C. G. Heath	161	10	5.00
C. G. Heath	162	10	5.00
C. G. Heath	163	10	5.00
C. G. Heath	164	10	5.00
C. G. Heath	165	10	5.00
C. G. Heath	166	10	5.00
C. G. Heath	167	10	5.00
C. G. Heath	168	10	5.00
C. G. Heath	169	10	5.00
C. G. Heath	170	10	5.00
C. G. Heath	171	10	5.00
C. G. Heath	172	10	5.00
C. G. Heath	173	10	5.00
C. G. Heath	174	10	5.00
C. G. Heath	175	10	5.00
C. G. Heath	176	10	5.00
C. G. Heath	177	10	5.00
C. G. Heath	178	10	5.00
C. G. Heath	179	10	5.00
C. G. Heath	180	10	5.00
C. G. Heath	181	10	5.00
C. G. Heath	182	10	5.00
C. G. Heath	183	10	5.00
C. G. Heath	184	10	5.00
C. G. Heath	185	10	5.00
C. G. Heath	186	10	5.00
C. G. Heath	187	10	5.00
C. G. Heath	188	10	5.00
C. G. Heath	189	10	5.00
C. G. Heath	190	10	5.00
C. G. Heath	191	10	5.00
C. G. Heath	192	10	5.00
C. G. Heath	193	10	5.00
C. G. Heath	194	10	5.00
C. G. Heath	195	10	5.00
C. G. Heath	196	10	5.00
C. G. Heath	197	10	5.00
C. G. Heath	198	10	5.00
C. G. Heath	199	10	5.00
C. G. Heath	200	10	5.00

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of February, 1898, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Dore & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Monday, the sixth (6th) day of April, 1898, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

GEO. H. PECK, Secretary.
Office, 212 Clay street, San Francisco. mar21

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1898, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of April, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the sixth (6th) day of May, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN P. LOISE, Secretary.
Office, 318 California street, Up stairs, San Francisco. California. mar21

Succor Gold and Silver Mining Company.—Location of Works: Storey County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of February, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Aldrich, Lewis	143	79 11-24	\$39.40
Aldrich, Lewis	144	41 1/2	22.25
Aldrich, Lewis	145	151 13-24	75.75
Aldrich, Lewis	146	29	10.00
Over, Benjamin	71	5	2.50
Over, Benjamin	72	5	2.50
Over, Benjamin	73	5	2.50

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of February, 1898, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs Olney & Co., No. 418 Montgomery street, San Francisco, on the fourth day of April, 1898, at the hour of 12 o'clock M. of said day to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. MOORE, Secretary.
Office, Nos. 77 and 78 Montgomery Block, San Francisco, California.

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the eleventh day of April, 1898, at the same hour and place. By order of the Board of Trustees.

E. J. MOORE, Secretary.

mar21

Mining Notices—Continued.

Folsom Street and Fort Point Railroad and Tunnel Company, San Francisco, California.

Notice is hereby given, that at a meeting of the Board of Directors of said Company, held on the tenth day of March, 1898, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Caleb T. Fay, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the eleventh day of April, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-seventh day of April, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. mar14

Fogus Mill and Mining Company.—Location of Works: Amador County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1898, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable on the twentieth day of February, 1898, in United States gold coin, to the Secretary, at his office.

Any stock upon which said assessment shall remain unpaid on the twentieth day of March, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the ninth day of April, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN J. SCOTCHLER, Secretary.

Office, No. 321 Front street, San Francisco. feb22

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of February, 1898, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the twenty-third day of March, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the fourteenth day of April, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, No. 302 Montgomery street. feb22

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of February, 1898, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of March, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of April, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. feb22

Kearns Mining Company, Kearns District, Inyo County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth (20th) day of January, 1898, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 408 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of February, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the thirteenth day of March, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

Office, 408 California street, San Francisco. jan25

POSTPONEMENT.—The day for selling stock delinquent on the above assessment is hereby postponed until Tuesday, the twenty-fourth (24th) day of March, 1898, and the sale thereof until Thursday, the sixteenth day of April, 1898. By order of the Board of Trustees.

T. B. WINGARD, Secretary.

feb29

Lyons Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-second day of February, 1898, an assessment of two dollars (\$2) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of March, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the thirteenth day of April, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. feb29

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the second day of January, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Alexander	424	1	\$2.50
C. E. Richard & Sons	622	48	120.00
Benjamin Finkel	334	1	2.50
Benjamin Finkel	335	1	2.50
Benjamin Finkel	336	1	2.50
Benjamin Finkel	337	1	2.50
Benjamin Finkel	338	1	2.50
Benjamin Finkel	339	1	2.50
Benjamin Finkel	340	1	2.50
Benjamin Finkel	341	1	2.50
Benjamin Finkel	342	1	2.50
Benjamin Finkel	343	1	2.50
Benjamin Finkel	344	1	2.50
Benjamin Finkel	345	1	2.50
Benjamin Finkel	346	1	2.50
Benjamin Finkel	347	1	2.50
Benjamin Finkel	348	1	2.50
Benjamin Finkel	349	1	2.50
Benjamin Finkel	350	1	2.50
Benjamin Finkel	351	1	2.50
Benjamin Finkel	352	1	2.50
Benjamin Finkel	353	1	2.50
Benjamin Finkel	354	1	2.50
Benjamin Finkel	355	1	2.50
Benjamin Finkel	356	1	2.50
Benjamin Finkel	357	1	2.50
Benjamin Finkel	358	1	2.50
Benjamin Finkel	359	1	2.50
Benjamin Finkel	360	1	2.50
Benjamin Finkel	361	1	2.50
Benjamin Finkel	362	1	2.50
Benjamin Finkel	363	1	2.50
Benjamin Finkel	364	1	2.50
Benjamin Finkel	365	1	2.50
Benjamin Finkel	366	1	2.50
Benjamin Finkel	367	1	2.50
Benjamin Finkel	368	1	2.50
Benjamin Finkel	369	1	2.50
Benjamin Finkel	370	1	2.50
Benjamin Finkel	371	1	2.50
Benjamin Finkel	372	1	2.50

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the mullor forces the pulp to the center, where it is drawn down, through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY,
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works,
San Francisco, Aug. 23, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

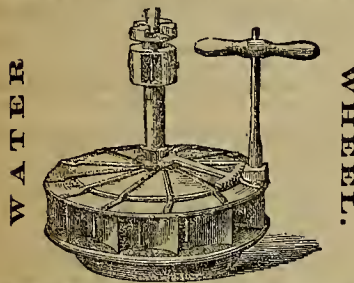
—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
San Francisco.

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALLED AND UNRIVALED in the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REFERENCES.—E. Stockton, Folsom; O. Simmons, Oakland (Mill at Clear Lake); Morgan Coville, Lexington, Santa Clara County; J. T. McMillan, Lexington, Santa Clara County. Send for Circular.

KNAPP & GRANT,
Agents for California,
25-13-17y 310 Washington street, San Francisco

NOTICE TO MERCHANTS

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; as goods require no shunting or landing, consequently make fewer breakages; requires one man less to operate; it stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,
By JOSEPH MOORE, President.

21-15-17f

JOSEPH MOORE.

HUNGERFORD'S

Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Ooss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25-15-17f

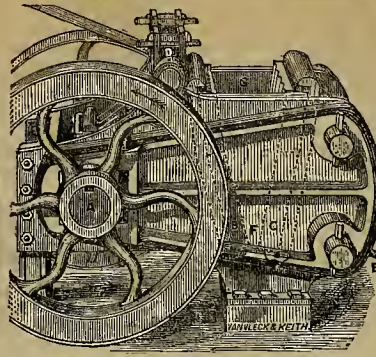
MORAN HUNGERFORD.

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Eisen Bros., Pioneer Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

A FULL ASSORTMENT OF
MACHINE SCREWS AND TAPS,
Constantly on hand and for sale by
CHAS. OTTO & CO.,
22-15-3m 312 Bush street.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages the advertiser is enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price to the order, \$9000

No. 2.—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour, \$850

No. 3.—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour, \$1200

EXPLANATION OF THE ABOVE ENGRAVING. The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient light to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 23, 1866.
JAMES BRODIE, Esq., San Francisco.—My Dear Sir: I beg to express my pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
R. P. JOHNSON,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desiring of compromising, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations are afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22nd, 1866. JAMES BRODIE, Fulton Foundry, or CHARLES RACINE, Express Building, 402 Montgomery street, San Francisco.

12-13-17f

C. F. TRAVIS,

Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

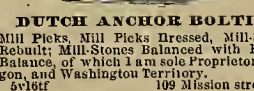
PORTABLE

MILLS.

Agent for

Dufour & Co's

Celebrated



DUTCH ANCHOR BOLTING CLOTHS. Mill Picks, Mill Picks Dressed, Mill-Stones Required and Rebuilt; Mill-Stones Balanced with Follenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS, 5-16-17f 109 Mission street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,

Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

319 and 321 Pine Street,

Between Montgomery and Sansome, San Francisco.
July 14-17

PACIFIC

FILE, REAPER AND MOWER SECTION

Manufactory,

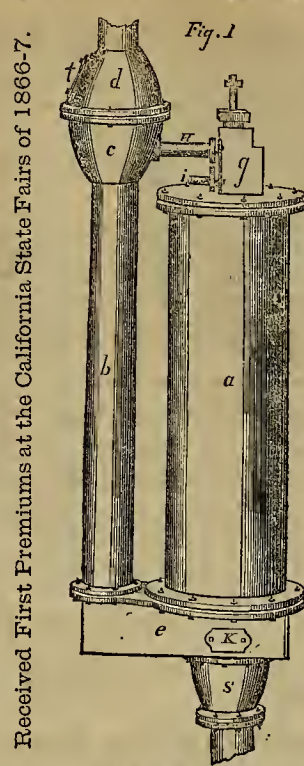
No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.
First premium awarded at the State Fair, 1867.
25-15-3m BURNING & KENNEY, Proprietors.

A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by

CHAS. OTTO & CO.,

Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco.
22-15-3m

WILCOX'S
Patent Steam Water Lifter.

Received First Premiums at the California State Fairs of 1866-7.

Send for Circular.

A Steam Pump without Engine, Piston, Plunger or Buckets, using both the expansive and exhaust power of steam, and doing more work with the same amount of fuel, than any other Pump driven by steam power. It is applicable to either light or heavy work, whether for mining, irrigation, or other purposes. It has been used of various capacities, from 500 to 40,000 gallons per hour, and can be made of any size required. It is not injured by sandy or muddy water. In height of lift it is limited only by the strength of the boiler used.

For further information, apply to M. & A. WILCOX, Proprietors, 19 Front Street, between I and J Sts., Sacramento, Cal. 25-15-2m3m

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a rollease of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Up-right Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,
Agents for the Pacific Coast.Notice to Miners,
Well-Borers and Water Companies.

M. PRAD is NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAD,
5-13-17 Store Store, No. 125 Clay street, below Davis.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clere & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and patterns of every description. Jig-Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regulated by the style required. 11-16-3M

A FULL ASSORTMENT OF
TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

—ALSO—
Steam Gauges, a general assortment of

Hardware, Cutlery, and
MECHANICS' TOOLS,

By CHAS. OTTO & CO.,
312 Bush street, San Francisco.
22-15-3m

Wright's Picks for Sale.

THIRTY-FIVE DOZEN FLAT-EYE SURFACE PICKS, with or without stop and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other description of PICKS for sale at REDUCED PRICES. Give me a call at 231 Fremont street, San Francisco.
8-16-3m JOHN WRIGHT.

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Bust and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. All kinds of Gas Companies supplied at short notice.
7-16-3m H. T. HOLMES.

MEANS OF ASCENDING AND DESCENDING

SHAFTS.—In a recent lecture at the Royal School of Mines, Mr. Warrington Smyth spoke of the plans adopted in different countries, for raising and lowering the miners in shafts. We quote from the report of the lecture as given in the London Mining Journal: "The worst ladders were those resting upright against the walls of a shaft. An ascent or descent of fifty, sixty, or eighty fathoms every day upon a perpendicular ladder, was found to affect the heart and lungs very injuriously, besides the risk of instantaneous death by missing hand or foot hold. The proper angle was about seventy-five degrees. Where the shaft was perpendicular, a system of sollars was used, by which the descent was divided. Each sollar had a man-hole, with a trap-door, so that a man would not have a fatal fall in case of accident. In several localities on the Continent very short ladders were used, not being more than two fathoms in length, and each sollar guarded with sides. In other places 4, 5, or 6 fathoms were common. The ordinary run of English mines had twenty to forty fathoms for the prevailing lengths. The longer lengths, however, were all more or less fatiguing, and in the deeper mines the average life of miners was shortened in consequence of this as much as by the bad air they breathed, so that many plans had been proposed to get rid of this labor. This had been tried by raising the men with the same ropes and chains that raised the mineral, but it was found to be too risky. The first step to a good solution of the difficulty was taken in Germany, by employing the pumping machinery, and it was put into practice there just at a time a premium was offered in this country by the Polytechnic Institution of Falmouth, for the discovery of some unobjectionable means of lowering and raising miners. Watching the action of the pumping rod, the two observers, (one in Germany and the other in Cornwall, without any communication with each other) conceived the idea that by making a foot hold on the rod, the miner would be drawn up as much as the length of the stroke at each stroke, when he could step off on to a platform, and then to a rod on the other side, which would just have completed the down stroke, and be ready to ascend. At first it was intended that only a few men should ride in this manner on the pumping rod.

The shaft being all open and unprotected, it required a good deal of nerve to step across the yawning abyss below, but it was found so advantageous, that eventually arrangements were made to carry all the men; and at Mansfeldt, in Prussian Germany, a plan was adopted by which the platforms nearly touched each other, so as to avoid this danger. In Cornwall the ascent and descent were made in a similar manner, but independently of the pumping rods, by what was called by the miners there the "man-engine." Most admirable machinery of this kind had been put up by M. Warneque at his colliery at Mariemont, where the step was large enough to accommodate two persons at once, and so well boxed in that all risk seemed to be removed. He spoke of risk, because there had been one or two sad accidents with the man-engine, arising out of persons going down by it, who not being accustomed to the noises of a pit, lost their coolness and presence of mind, did not keep clear, and came in contact with the beams. In this country a great improvement had been made in this respect, and instead of two rods a single rod was put in, the steps being 2 fms. apart, and at corresponding intervals sollars were constructed, which the steps all but touched. It made about eight strokes in a minute, and 12 ft. at a stroke, so that the rate of ascent or descent was 72 ft. in a minute. The expense of this single-rod system was not considerable, and wherever a shaft was 150 fms. deep, or more, a man-engine should be put in."

GERMAN RAILWAYS.—In some parts of Germany, railways have been constructed without the use of wood. The rail is made about nine inches high, with a broad flat base, which rests on a well prepared bed of ballast, and when properly fixed is further supported by a layer of gravel. Thus constructed, the jerky motion of a train, occasioned by numerous cross-sleepers, is done away with; the hammering sound becomes a steady, continuous roar, the longitudinal bearing is distributed over a greater distance, and the need for repairs occurs but rarely.

BEHIND THE AOE.—Col. J. F. Meline, U. S. A., in his recently published book entitled "Two Thousand Miles on Horseback," has the following:

"I can imagine no objects that would attract more interest and wonder at an American agricultural fair than a New Mexican cart, plow, and yoke—not to mention some smaller things. The plow takes you back at once to Biblical simplicity. In looking at its heavy beam, some sixteen feet long, with a small forked piece of wood attached, you wonder, first, how it could ever be moved, and, secondly, what earthly (the proper word in that connection, I think) good it could ever effect. The cart is made of the brittle cotton-wood, in a manner that shows a general absence of tools in its construction. Neither steel, iron, nor nails are used, and strips and strings of rawhide fasten the pieces together. For the wheels, a clumsy, thick, oblong block of wood is placed by wooden pegs to two segments of a circle; through these a hole is hacked to pass the axle-tree. The circle, of course, never attained; an approximation to it being all that is thought desirable. No grease. Excruciatingly vocal, and murdering sleep within a circumference of a mile. A supply of heavy axles is loaded into the cart for any journey beyond a day, so that it is frequently half filled with them."

SOUTH AMERICAN EXPLORING EXPEDITION. The expedition from Williams College, which left the States early in the summer of the past year for the purpose of making scientific explorations in South America, arrived in New York February 11th, from Para. The party comprised two divisions, one of which, starting from Guayaquil, upon the western coast, crossed the Andes, and passed down the Rio Napo, meeting upon the Amazon the other, which started from Caracas, upon the coast of Venezuela, and proceeded up the Orinoco and down the Rio Negro, making a distance of 2,500 miles by canoe.

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20.....10 cents.
Over \$20 and not exceeding \$50.....25 cents.
No fractions of cents to be introduced in an order.
United States Treasury Notes, or National Bank Notes only received or paid.
To send over \$50, additional Orders must be obtained.
Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out:
No. Amount Date,, 1886 ..

MONEY ORDER.

Required for the sum of \$.... Payable at
State of Payable to Residing at
Residing at State of Sent by
Entered in Register: State of
Names of parties and places, and the sums, to be written in the plainest possible manner.

As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.			
Office.	County.	Office.	County.
Auburn.....	Placer.	Napa City.....	Napa.
Benicia.....	Solano.	Nevada City.....	Nevada.
Campanville.....	Yuba.	Oakland.....	Alameda.
Chico.....	Butte.	Oroville.....	Butte.
Columbia.....	Colusa.	Petaluma.....	Sonoma.
Colusa.....	Colusa.	Pleasantville.....	El Dorado.
Downville.....	Sierra.	Red Bluff.....	Tehama.
El Dorado.....	Placer.	Sacramento.....	Sacramento.
Elk Grove.....	Humboldt.	San Rafael.....	Marin.
Folsom City.....	Sacramento.	San Francisco.....	San Francisco.
Forest Hill.....	Placer.	Santa Cruz.....	Santa Cruz.
Georgetown.....	El Dorado.	San Jose.....	Santa Clara.
Gibsonville.....	Sierra.	Santa Rosa.....	Sonoma.
Gilroy.....	San Clara.	Shasta.....	Shasta.
Grass Valley.....	Nevada.	Sonoma.....	Sonoma.
Headlands.....	Sonoma.	Stockton.....	Sin Joaquin.
Iron Valley.....	Amador.	Suisun City.....	Solano.
Jackson.....	Amador.	Sussexville.....	Lassen.
La Porte.....	Plumas.	Vanderburg.....	Solano.
Los Angeles.....	Los Angeles.	Vallejo.....	Solano.
Mariposa.....	Mariposa.	Vassallo.....	Tulare.
Marquetteville.....	Alpine.	Watsonville.....	Santa Cruz.
Marysville.....	Yuba.	Weaverville.....	Trinity.
Martinez.....	Contra Costa.	Wilmington.....	Los Angeles.
Mokelumne Hill.....	Calaveras.	Yreka.....	Siskiyou.
Monterey.....	Monterey.		

NEVADA.

Office.	County.	Office.	County.
Virginia City.....	Storey.	Austin.....	Lander.
Carsou.....	Ormsby.	Aurora.....	Esmeralda.

OREGON.

Office.	County.	Office.	County.
Albany.....	Lincoln.	La Grande.....	Union.
Canby City.....	Grant.	Oregon City.....	Clackamas.
Canbyville.....	Benton.	Portland.....	Multnomah.
Ballas.....	Polk.	Roseburg.....	Donahoe.
Eugene City.....	Jane.	Salem.....	Marion.
Jacksonville.....	Jackson.	The Dalles.....	Wasco.
Lafayette.....	Yam Hill.	Umatilla.....	Umatilla.

IDAHO TERRITORY.

Office.	County.	Office.	County.
Bose City.....	Boise.	Ruby City.....	Owyhee.
Idaho City.....	Boise.	Lewisville.....	Ney Perce.

MONTANA TERRITORY.

Office.	County.	Office.	County.
Holena.....	Edgerton.	Virginia City.....	Madison.

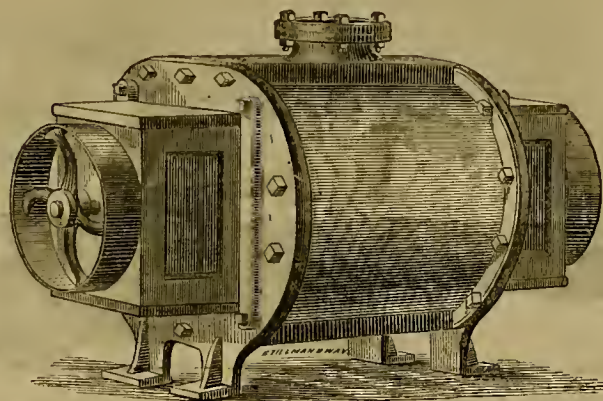
WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia.....	Thurston.	Vancouver.....	Clark.
Steilacoon City.....	Pierce.	Walla-Walla.....	Walla-Walla.

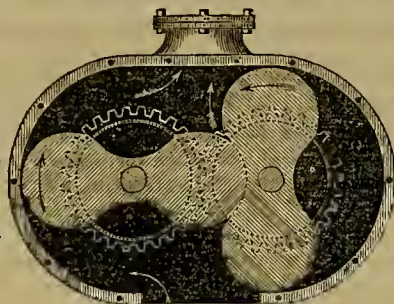
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

KEEP, BLAKE & CO.,
Globe Iron Works, Stockton, Cal.

WE ARE NOW OFFERING
OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of
ALL THE LATEST STYLES
BOTH OF MATERIAL AND FINISH.

A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.
J. R. MEAD & CO.,
Cor. of Washington and Sansome streets.

HAYWARD & COLEMAN,
IMPORTERS AND REFINERS
—OF—
Mummifying, Lubricating,
—AND—
PAINT OILS!

CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
TANNERS', NEATFOOT, BOILER AND RAW
LINSEED, CASTOR AND CHINA NUT.

—ALSO—
SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of MILL owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.
A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!

An elegant and complete assortment on hand.
1913-3m 414 Front street, San Francisco.

Our Patent Agency.

The PATENT AGENCY OF THE MINING AND SCIENTIFIC PRESS has been signalized with remarkable success during the past two years. The importance to the inventive genius of this coast of a thorough and reliable agency for the solicitation of LETTERS PATENT from the United States and foreign Governments cannot be over-rated, and the Proprietors of the Press, feeling the responsibility which rests upon them, and the reward which must follow the faithful performance of their trusts, will make every effort to afford inventors every advantage to be secured to them through a competent and responsible agency upon this coast.

MECHANICS'
Mill and Manufacturing Co.

Cor. Mission and Fremont streets,
SAN FRANCISCO.
Formerly James Brokaw, Proprietor.

This establishment is now under the control of a Joint Stock Company, composed of the old employees, is supplied with all the

Modern Improvements in Machinery,
And has the best facilities in the State for furnishing Buildings with every description of WOODWORK FINISH.
All orders promptly and carefully attended to.
8v16-3m ASA R. WELLS, Manager.



It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.
No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.
Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can ALWAYS be used with

PERFECT SAFETY.
It has long been in constant use by many our most EMINENT PHYSICIANS, who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	48 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by
TURNER & CO.,
Sole Proprietors,
9v16-6m 120 Tremont street, Boston, Mass.

Metallurgy.

BOALT & STETEFELD
Metallurgists and Mining Engineers
AUSTIN, NEVADA.
Western Branch of ADLERBERG & RAYMOND,
Broadway, New York.

D. W. MAYNARD. J. H. TIEMANN.
MAYNARD & TIEMANN
Mining Engineers and Metallurgists
210 Pearl street, New York.
—AND—
CENTRAL CITY, COLORADO.
19v12-1y

G. W. STRONG,
ASSAYER AND WORKER OF ORES
SAN FRANCISCO FOUNDRY,
Fremont street, near Mission, San Francisco
Highest price paid for choice lots of Ores, Sulphur, Asphalts, Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14v15qr.

Parties desirous of Taking
A COURSE OF INSTRUCTION

CHEMICAL ANALYSIS,
THE ASSAY OF ORES,
And the Use of the Blow-pipe,
OR ANY PART OF SUCH COURSE,
May apply at this Office.

Pupils will have the advantage of a Complete Laboratory.
19v15

BRANCH
OF THE NEWARK, N. J.,
Metallurgical Works.

BALBACH & BROTHER,
No. 315 Howard Street, bet. Fremont and
Beale, San Francisco.

Assays of Gold, Silver, Copper and Lead Ores.

Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, if desired, by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.

Consignments of Gold and Silver Ores solicited.
Refining of Bullion at usual rates.
Agents for Ed. Balbach's Improved Process for Separating Silver and Gold from Lead.
2v15-3m

JOHN TAYLOR & CO.
IMPORTERS,
AND DEALERS IN
ASSAYERS' MATERIALS,
Druggists' & Chemists' Glassware,
Photographic Stock, Etc.
512 and 514 Washington Street,
SAN FRANCISCO.

WE are receiving direct from MESSRS. LADD & OERTLING (London) and BECKER & SONS (Antwerp, Belgium) their superior

ASSAY AND BULLION BALANCES,
And from France and Germany, as well as the Eastern States, FURNACERS, CRUCIBLES, MUFFLES, BLOW-PIPE CASES, GOLD SCALES, CHEMICAL GLASSWARE, and every article required for ASSAY OFFICES, LABORATORIES, etc. We have given this branch of our business particular attention, to select such articles as are necessary in the development of the mineral wealth of this coast.
A Full Assortment of DRUGGISTS' GLASSWARE and DRUGGISTS' SUNDRIES, ACIDS and CHEMICALS, on hand.
San Francisco March 6, 1865 11v10-1f

MANHATTAN
Metallurgical and Chemical Works,
Nos. 552 and 554 West Twenty-eighth st.,
NEW YORK.

Assays of Gold, Silver, Copper and Lead Ores.

SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF Ores, Minerals, Clays, Waters, and General Commercial Products of all kinds.
Tests of Gold, Silver, Copper and Lead Ores, by Smelting, in quantities of fifty pounds to five, ten or fifty tons.
Consignment of Ores solicited.
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U. S. NATIONAL BANKING SYSTEM.—We have received from the author, John Williams, editor of the *Iron Age*, a pamphlet entitled,—"Letter to Hon. Robert C. Schenck, M. C., Chairman of Committee of Ways and Means, on the origin, object, and effect of the National Banking System of the United States, with some suggestions for its improvement." Mr. Williams claims to have been the originator of the system, which with some variations is now in force, and declares that its imperfections consist in those variations. He urges that to adapt it to the present condition of the country, it is only necessary to adopt, in its entirety, his original proposal.

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ANOTHER CALIFORNIA ENTERPRISE.—A Factory has been started in this city for the manufacture of AUSTIN'S CELEBRATED BRILLIANT PASTE BLACKING. This preparation not only produces a most brilliant polish; but, unlike imported Blacking, it is pronounced the best LEATHER PRESERVATIVE ever introduced. Trades supplied twenty per cent. less than any imported article. Factory, No. 1 Montgomery Court, near the corner of Broadway. 26v15-3m

MEDICAL AUTHORITIES have announced that not less than one-fifth of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Massachusetts. His "Universal Neuralgia Pill" is pronounced on all hands, to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this country, Mr. O. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1888. 10v16-3m

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Notice.

MR. RUSSELL, WHO CALLED ON US IN MAY, 1887, in reference to an analysis, will hear something to his advantage, by addressing

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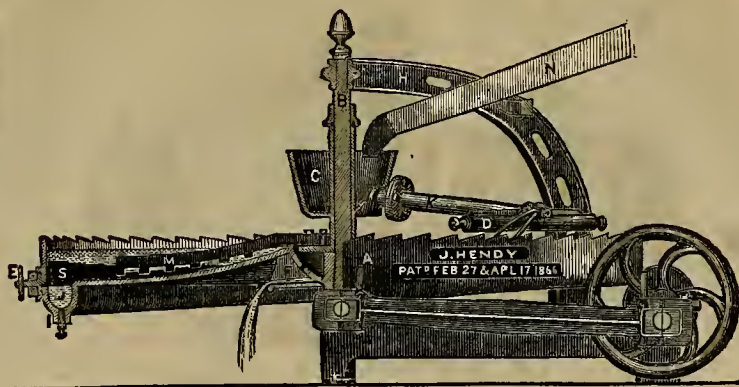
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Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators or pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets.
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (8 Concentrators).....Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (8 Concentrators).....Grass Valley, Nevada County.
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VALENTINE & CO., Commercial Mill (3 Concentrators).....Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....Humboldt County, Nevada.
ROBINSON & McALLISTER M. & M. CO. (3 Concentrators) Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....Calaveras County.
MIDAS MILL CO. (4 Concentrators).....Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....Sonora, Mexico.
B. F. BROWN (1 Concentrator).....Melbourne, Australia.
JAMES HENTY & CO. (1 Concentrator).....Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1887.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1888.

J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.

W. H. RODDA, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. CO., }
VIRGINIA CITY, Nev., Sept. 17, 1887. }

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

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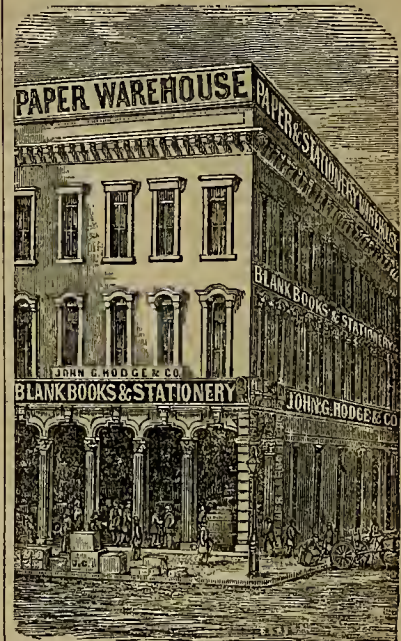
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SAN FRANCISCO, SATURDAY, MARCH 28, 1868.

VOLUME XVI.
Number 13.

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MININGSUMMARY.—Comprising late intelligence from the various counties and districts in California, Colorado, Idaho, Nevada, New Mexico and Oregon.
San Francisco Market Rates.

[Editorial Correspondence.]

Work at the Hoosac Tunnel.

WESTFIELD, MASS., Feb. 12, 1868.

NOTE.—It is intended to state facts as briefly as possible in this article, mainly from notes and observations made Nov. 19th and 20th, 1867. The object is to afford a more direct railroad thoroughfare, with light grade, from Boston to Troy.

Hoosac Mountain is in the northwest corner of Massachusetts, thirty miles west of Greenfield. The east portal of the tunnel is at the base of the mountain, close by the great bend in Deerfield River. Just below, the cañon emerges into a small but beautiful valley. Surrounding mountains rise from 500 to a 1,000 feet high, with steep ascent. The western portal is two miles from North Adams, present terminus of the Boston and Troy R. R. It fronts a fertile valley, which is overshadowed by "Old Greylock (Saddle Mountain), the highest peak in Massachusetts.

The direction of the tunnel is east and west; length, 25,031 feet, or nearly five miles; dimensions, 24 feet wide by 22 feet high; grade, each way from center, 5-10 of a foot in 100 feet.

The work was undertaken in 1850, by the Troy and Greenfield R. R. Co., hacked by a loan of \$2,000,000 from the State of Massachusetts. In 1862, the railroad company having failed, the State took the work upon itself.

AT THE EAST END,

the improvements comprise a 3-story machine shop, blacksmith shop, office, store, school-house, store-houses, and several boarding-houses. A heavy dam turns a large supply of water through a canal to the machine-shop, furnishing power for compressing air for ventilating the tunnel, operating the machine drills, etc.

Mr. A. P. Woodruff, a mining superintendent of long experience, has charge of the work in the east tunnel. We learned from him that the distance from the portal to the heading, was 4,800 feet, through solid slate. It is generally termed mica slate. Fine seams of white and bluish flinty quartz are frequently met with. It appears more irregular and tenacious than the ordinary slate rock of California.

ENLARGEMENT.

The first 2,400 feet was worked by Herman Haupt & Co., under contract with the T. & G. R. R. Co. Size, 15 feet wide by 14 feet high. This is being enlarged to 24 feet

wide by 22 feet high. From the 1st of Aug. to the middle of Nov. last, 1,400 feet was completed. About 170 men are employed, and from 1,500 to 2,000 cubic yards has been removed per month. The men work 11 hour shifts. Approaching this gang of men, their lights shining at various altitudes, give semblance of a lighted village located in a narrow ravine.

The tunnel is a very agreeable one for visitors,—so large, well ventilated and dry, that one actually misses the sensation of confinement usually experienced in more contracted excavations. For a short section, only, and that near the entrance, is water found dripping.

THE HEADING.

Beyond a distance of 2,400 feet from the portal, the tunnel is 15 feet wide by 6 feet high, for some 1,200 feet; but the heading is now worked 24x8½ feet. It follows the grade,—the enlargement is to be made from

gine, working independently and receiving its power (condensed air) through a 1¼-in. rubber hose. Weight of machine about 400 pounds. It contains eighty pieces.

The piston holds the drill, and is four feet 9 inches long; stroke, 9 to 10 inches; diameter of head, 4¼ inches; piston bar, forward of the head, 3 inches; in rear of head, 2¼ inches; air area, 8¼ inches when the drill is propelled against the rock, and 7 7-100 when returning from it; piston head packed with a ring of oak-tanned leather, held outward by a steel spring. Ports, 2½ by ¾ inches, opened about half way; cushion of 2 inches of air remains at each end to strike on; rotary valve; induction cock for stopping instantly.

The front part of the piston is a 3-inch steel bar, with 7-inch socket for taking the drill-stock. This socket is slit through on both sides, and sprung in by means of two bolts, causing the drill to be held by a some-



A PROFILE VIEW OF HOOSAC MOUNTAIN AND TUNNEL.

We give above a profile view, which will aid the reader of the accompanying letter in forming a just conception of the magnitude and progress which has been made upon this important work. A represents the western opening of the tunnel. Near this point two shafts have been sunk, from the bottom of one of which considerable progress has been made in drifting both ways. The adjoining shaft, which was commenced with the view of giving better ventilation, has not yet been completed. Work upon it is progressing from both top and bottom. About 1,000 gallons of water per minute are raised from this portion of the work. B is the west summit, which is 1,710 feet above the level of the tunnel. C is the central shaft, which is fully described in our correspondent's letter. D is the east summit, 1,249 feet above the tunnel level. E is the east entrance. The diagram is made to a scale of a little short of 3,500 feet to an inch horizontal, and about 700 vertical.

the top. At this heading, 4,800 feet, or nearly

ONE MILE FROM DAYLIGHT,

a grand mining spectacle is exhibited at "all hours" of "day and night." Eight air engine drills, pointing in various directions, are thundering away at the rate of 200 to 300 strokes per minute, the blows against the hard rock producing miniature meteoric showers of sparks. Add to this lively scene the occasional strange blasts, powerfully uttered by escaping compressed air, and the reader can faintly imagine the real sensation at first impressed upon the beholder of this great workshop in the "chambers of the earth."

THE MACHINE DRILLS

are attached to carriage frames fronting the heading, one on each side of the tunnel. These frames are about 20 feet in length, 6 feet high by 4 feet 8 inches wide, firmly braced; projection over forward truck, 8 feet; rear platform loaded with steel, extra drilling machines, etc., for ballast. When in operation the frame is raised so as to rest its entire weight upon jack screws.

On the forward end of each frame, four or more drills are attached, with universal motion. Each machine is a complete en-

gine, working independently and receiving its power (condensed air) through a 1¼-in. rubber hose. Weight of machine about 400 pounds. It contains eighty pieces.

THE MOVEMENT OF THE DRILL

is described as follows: On the back end of the piston is a section of a hall used as a cam, which works the valve and the feed-motion. The valve is rotated by a rod lying on the hand of the cylinder; upon this rod are two cams which perforate the hand of the cylinder. The action of the piston brings the ball on its end in contact with these cams, rocking them up and down; the rod to which they are secured being connected with the valve, imparts to that its motion. The machine is fed altogether on ways, or a bed-piece, upon which is the feed-screw; the feed-nut is upon the end of the cylinder-hand. To this feed-nut is attached a feed-ratchet, which is held between two collars, allowing it to turn round. Upon the cylinder-hand is a lever, one end of which passes through the hand; upon the other end is a pawl. The motion of the piston raises the lever up, pressing the end containing the pawl against the ratchet which turns the nut on the feed-screw, thus moving the machine forward. The rotating ratchet is in the hand of the cylinder and

has a spline in it, and a pawl on the outside. The piston having a spiral groove is turned by this ratchet as it moves down. On the return of the piston, the pawl drops into the ratchet and then the piston is turned. It makes one revolution to fourteen strokes. The piston is not encumbered with any machinery; it moves alone, and is the only part which receives the shock resulting from the blow; its area of air, as before stated, is greater on the forward than on the backward stroke; the alternation of the valve admits the air. Without change of drill-points, from thirty to forty inches advance can be made, and by changing, any depth of hole required may be obtained.

The machines are of 3-horse power, and when in perfect order, with a pressure of 50 pounds to the inch, are capable of dealing from 250 to 300 blows per minute. Considerable repairing is required, but by a quick method of adjusting the machines, and an extra supply of the same, all serious delay is avoided. They can be operated by steam. Air being quicker than steam, 30 pounds of the former is here considered equivalent in effect to 40 pounds of the latter.

WHAT THE MACHINES ACCOMPLISH.

It is over fifteen months since these drills were introduced. In four weeks one machine, without repairing, working but about six hours out of the twenty-four, including the time of changing the drill-points and positions, has made 2,250 feet of 2¼-inch hole. Alvah Crocker, chief superintendent, reports that, "notwithstanding the size of the heading has been increased, from 6x15 feet to 8½x24 feet, the actual progress for the last seven months has been 116 feet, against an average of 55 feet during the last seven months of hand labor. By hand drill, in the enlargement, two men average about 8 feet of 1¼-inch hole in 11 hours." In 6 hours the machines drill holes enough to employ the balance of the 24 hours in blasting and clearing away the rock knocked down. By hand labor \$28 per cubic yard has been the cost of excavating rock at the heading; it is now accomplished at less than \$8 with the aid of the machines.

A. T. D.

[Next week we shall give a description of the Burleigh Drill, referred to in the foregoing, which is now being so successfully used in the Hoosac Tunnel.]—EDS. PRESS.

IMPORTANT PATENT DECISION.—We clip the following from the New Haven Palladium, of February 21st: In the case of Eli W. Blake vs. Charles W. Stafford, which was an action in the United States Circuit Court for the district of Connecticut, for infringement of plaintiff's patent for jaw machine for breaking ores, etc., Judge Shipman rendered a decision on the 18th of February, at Hartford, in favor of the plaintiff. The decision was elaborate and able, and fully sustained the validity of the Blake patent.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

Communications.

The Age of Gold Bearing Rocks.

BY PROF. ROWLANDSON, F. G. S. L.

The long delay which has elapsed since the appearance of my last paper on this subject, has most probably led many persons to suppose that the series which had been commenced had somewhat abruptly terminated. The delay has chiefly arisen, because from information received, I was led to infer that not only, both here and in South America, there existed some probability that within a reasonable period, discoveries would be made calculated to show that auriferous and argentiferous veins, chiefly consisting of quartz, would be found penetrating tertiary strata. The most recently published researches, however, do not countenance such an opinion, especially as respects more particularly those which are gold-bearing. It is, however, asserted by several that, to a considerable extent, productive argentiferous veins are to be found in Chili, erupted amidst strata pertaining to the tertiary system. As regards this State and that of Nevada, so far as I can glean from others, the tertiary rocks in that part of the Pacific coast under notice, in place of increasing in area as researches are made, on the contrary diminish, assuming the form in most instances of outliers only, and generally of circumscribed extent, if we leave out of consideration the boulder, gravel, clay and similar superficial accumulations, of which are composed our hydraulic and placer mines, and also our arable, pasture and forest bearing lands.

TEMPORARY SUMMARY.

Whilst awaiting further information from Australia, New Zealand—perhaps Hindostan may be added to the list, as this extensive region has now for some time had the benefit of a geological survey, which is still continued under the able direction of an eminently talented gentleman, Mr. Oldham,—it will not be amiss to recapitulate some of the more prominent features associated with this subject, before a final retrospect is made; by which time I hope to be able to add the observations made by several independent observers who are usefully employing their labors and talents in extending our geological knowledge of Central and South America. We cannot leave this part of the subject without remarking, that it is to be hoped the Italian and Austrian governments will afford, as they certainly could do, great assistance in elucidating many points connected with the age and origin of gold-bearing veins, by directing some portion of their geological staffs in ascertaining the facts associated with the formation of gold veins in the Noric and Lombard Alps, Hungary and Transylvania; much of the two last auriferous districts pertaining to prolongations and spurs of the first named mountainous region.

From information recently obtained from a private source, I am more strongly inclined to infer, what I have suggested in former papers, that it is highly probable that a large portion of our Virginia, Georgia, and North Carolina gold districts, east of the Appalachians, will be found of similar geological age with the auriferous rocks on the Pacific coast.*

Beyond the instances just noticed, which are alluded to, however, as somewhat dubious, but which would be to the highest degree interesting if well established, I am not aware of any satisfactory case having been reported, that gold-bearing quartz veins are to be found penetrating rocks pertaining to a more recent geological series than the cretaceous, and those chiefly composed of Jurassic, or as they are more commonly known to England, as Liassic rocks. With respect to Australia, contrary to my anticipation, as geological surveys of that island-continent progress, the proofs, according to the opinions and reports of the various surveyors engaged thereon, appear to accumulate, that gold-bearing quartz ledges (as they are locally termed) are only to be found protruding through rocks of paleozoic age.

Admitting such to be the case, it may at the same time occur that the injected or deposited auriferous rock may not have been inserted until long posterior to the formation of the enclosing rock. Mr. Selwyn considers that some of the gold-bearing alluvial or placer gravels of Australia are as ancient as the eocene period; if subsequent investigations should fully establish this opinion, it would tend to show that the erupted auriferous rocks of Australia are probably amongst the oldest to be found on the face

of the earth, which is the very reverse of my earlier anticipations. To make this more fully understood, the reader may be reminded that in all other parts of the world, where gold has been found in placers, such alluvia or diggings usually consist of post-pliocene or modern superficial strata or drifts; in only very rare cases, and then generally under considerable doubt, to strata belonging to the upper pliocene period.

With only one exception, all the most recent accounts received from the Central American States, Mexico, and the west coast of South America, respecting the most prominent auriferous and argentiferous districts, tend towards establishing the impression that the chief mines of these celebrated bullion-producing districts are to be found associated with rocks of cretaceous and not of paleozoic age; thus completely negating the opinion which formerly prevailed, viz., that gold-bearing veins need only be looked for amongst the latter named series, an opinion which would not have so long held its ground had it not been for the fact that rocks which surround auriferous and argentiferous veins, even of the cretaceous series, are so metamorphosed in appearance as to strongly resemble those accompanying and generally found connected with gold-bearing strata when surrounded by silurian and other anciently deposited rocks, generally associated simultaneously or in near contiguity with igneous and metamorphic rocks of an allied character, the series common to both being ordinary hornblende and chloritic slates, mica (seldom in California), talc, hornblende chlorite, granite, porphyry, and the ordinary variety of accompanying minerals. Consequently no correct deduction could be drawn, or proof established, as to the age of auriferous rocks, in consequence of the lithological similarity existing in common with the rocks surrounding auriferous veins, whether protruding through those of primary or secondary age, until undoubted fossil evidence had been obtained; the first marked instance of which was the case of belemnites, etc., discovered near the Pine Tree lead on the Mariposa Estate, details of which, together with some confirmatory evidence appeared in my earlier papers on this subject. Awaiting further and fuller information from various parts of the world, before closing the series and terminating the same with some general observations respecting the possible elucidation which a fuller consideration of this subject may eventually throw upon the origin of what is usually understood by the term metallic mineral veins, I shall for the present cease the continuance of this series for some time to come. It will not, however, be out of place to insert, by way of a temporary conclusion, a short quotation from Humboldt, which is calculated to illustrate two points, which are very little comprehended, viz., the feasibility of wearing out the hardest rocks and their distribution by aqueous influence in beds which subsequently become placers by alternations of the level of the land. What follows, is that celebrated traveler's description of the character and appearance of the river Orinoco, above one of the most celebrated cataracts (that of Carwen):

"The next day they found the bed of the river to the length of 3,600 feet, full of granitic rock. They passed through channels that were not five feet broad. The canoe was sometimes jammed between two blocks of granite. When the current was too violent to be resisted, the rowers leaped into the water, and fastened the rope to a point of a rock, to warp the boat along. This manoeuvre was very tedious, and the travelers sometimes availed themselves of it to climb the rocks amongst which they were entangled. The rocks were of all dimensions, rounded, very black, glossy like lead, and destitute of vegetation.

It was an extraordinary phenomenon to see the waters of one of the largest rivers on the globe in some sort disappear. They perceived, even from the shore, those immense blocks of granite rising from the ground, and leaning one against another. The intervening channels in the rapids were more than twenty-five fathoms deep; and were the more difficult to be observed as the rocks were often narrow towards their bases, and formed vaults suspended over the surface of the river," thus clearly evidencing the abrading influence which flowing water is capable of exercising.

The preceding paper has been written the larger part of a year, but has been withheld from publication in the hope that when Mr. Atwood returned, a series of papers connected with the same subject published in the *Quarterly Journal of the London Geological Society and Magazine*, written by D. Forbes, would arrive. A series of these publications, however, was lost at the Trent at the late convulsion at St. Thomas. A new edition of *Siluria*, by Sir R. Murchison, Bart., has just appeared, in the advertisement announcing which, additional information respecting gold production is promised. A final paper on the subject will be withheld until the writer has had an opportunity of perusing the publication alluded to.

(Written for the Mining and Scientific Press.)

A New Mining Enterprise.

MUD SPRINGS, March 18, 1868.

EDITORS MINING AND SCIENTIFIC PRESS: In traveling from Jackson, northward, through Amador County, we pass through Hayward's at Sutter; Amador City, with its famed Knickerbocker mill; through Drytown, and its present dry mills, (though it is said the Drytown mine has lately struck good rock, which, being so, it will not stay dried up long) up to Hooper's, which has been the last of the line of mills, northerly, on the main mother lode of the State. But continuing our course north, on the line of quartz and slate, we strike the forks of the Cosumnes. Just before reaching there, you pass an unpretentious settlement, called Enterprise; and it might have been started by enterprising people, but they have died out. There is a small mill here called "Enterprise Mill," which has not done anything as yet, their mine not being sufficiently opened; but from the character of the substances thrown from their mine, I should judge them to be on the correct strata. The road crosses the Cosumnes at Yesmet on a wire suspension bridge, which seems much out of place in this sparsely settled country, where scarce a traveler a day looks over its imposing height to the wild seething waters below. About two miles above the bridge, on the north fork of the Cosumnes, is Nashville, not known by 100 people outside of El Dorado County, to have ever been in the State; yet here was once a large population; here was almost, if not the first quartz mill in the State. Its machinery was transported across the Isthmus on muleback. It has been the seat of five quartz mills, three driven by steam, and two by water, of all of which there is now no trace but a pile of heavy shafting, with flanges, cams, couplings, gears, etc., and tradition saith that fifty arastras supplied the ore for the "table," the "saloon" and the "dance house," till the place overflowed with hilarity and recklessness. The rock to supply all these grinders was obtained from a ledge or ledges on the east side of the river, called the Havilah, the Cascade and Montezuma mines. Now, how changed in Nashville; a few easy-going residents were still clutching their golden ledges, even in starving despair. In August last some San Francisco capitalists came to look at the pioneer of quartz ledges, and arranged to buy, conditionally.

They put up small hoisting works, and sunk a shaft from the surface, on an incline of forty-seven degrees—ninety feet, to the water level of the old works. About this time, there seemed to be a disagreement among them, and the work stopped, being idle six weeks, when it was announced that the Havilah Co. had bought the Valle del Oro mill, at Grizzly Flat, and were about to move it to the mine; and true enough, in two weeks time, El Dorado County was strung with teams from Grizzly Flat to the Cosumnes, bearing all of a 40-stamp mill to its new destination. Before everything was delivered, though, the rains had set in, and the do-nothing people shook their heads, "they will not be able to do it this season." But the parties having it in hand were not to be deterred by trifles, notwithstanding the stranding of teams, breaking of axles, miring, sliding and slashing; all the work was got on to its new site, but part of the building material. That had to be provided. All the sawmills in this section had shut down as soon as rain began to fall; but there was found a man with enough of the Yankee in him to reset his mill and go to work, even in the rain. And Farnham, of Fiddletown, has furnished for the building of that mill and other buildings, 100,000 feet of lumber, delivering it all through the winter with scarce any regard to weather or water. Now there stands opposite Nashville, on the Cosumnes, about eight miles south from Mud Springs, the best 40-stamp mill there is in California, with a mine whose surface has sown gold broadcast. At the same time, while building the mill, they put up a larger engine and boiler for the hoisting works, and having retimbered all the old workings, are now sinking a shaft 100 feet lower to develop the mine, and get it sufficiently opened to furnish the rock that forty stamps will steadily require.

The mill is situated 300 feet from the incline. The rock is hoisted in the cars, runs on a tramway on a safe incline to the top of the mill, and is dumped into shutes that direct it in piles before each 10-stamp battery. The mill building has been erected on a

rounded point of the hill, high up, with special reference to having everything go through by gravity. It is all down hill from the time it comes out of the mine, till it is finished in the chlorination tubs and sluiced into the tailing reservoirs.

The machinery is driven by a 14-inch cylinder engine, supplied by two 42-inch tubular boilers. The steam is superheated by Carvalho's arrangement. The engine sets in a solid mass of stone work eight feet deep, and is as solid as the hill. Three sets of the mortars for 30 stamps, are the low mortars with wood housings, but two mortars are entirely iron, made expressly for gold, from a plan originating with the Superintendent, for which he has filed a caveat. The pulp, after leaving the screens, drops on an inclined copper shelf of eighteen inches wide, from thence on to two coppered inclines, one running north, the other south, each five feet long, fourteen inches wide. At their termination, the stuff drops to another coppered shelf of same length and width, running to the center again, and so on, zig zag down over six sets of shelves, each projecting its width beyond the other, running over sixty feet of copper in the space of the battery ports, and eight feet in width. It is then distributed into a level trough which sets directly over the heads of a series of twenty percussion concentrating tables, five for each battery of ten stamps; small sliding gates under this trough allow the pulp to be distributed on to the concentrators. A long line shaft, with twenty cams on it, gives motion to the tables, moving each out eight inches, from whence it drops back against a timber called a butt, each table taking its turn and dropping as regular as the crushing stamp. The whole has the appearance of a wave of the sea on shore, and in its action the effect is similar, leaving the heaviest matter, and carrying off the light. In front of the concentrating tables, a tram-road is laid, and a small car receives all the sulphurcts as shovelled from the tables and transports them to the furnace.

The supply of water is obtained by a direct action, steam pump, drawing from the river; of five-inch diameter, and eight-inch stroke, throwing water both ends of stroke, with velocity of 9,000 gallons an hour. Besides, they have all the water of the mine discharged at the top and conducted into a large tank, from whence it is taken by a four-inch pipe for distribution in the mill. At the mill, the water is divided and taken in two-inch pipes. One leads through the exhaust pipe to warm the water and delivers into the mortars; another runs immediately in front, a little below the level of the bottom of the screens, and the water projects against the screens from small holes in the pipes, each mortar having a cock at each pipe to regulate its supply. Another two-inch pipe leads the length of and above the concentrating tables; from it drop smaller pipes over each table, terminating in a T just above; this is also perforated with holes, so that the tables can be showered to clear them and wash off the lighter substances. Another pipe leads to the chlorination room. The desulphurizing furnace is double; has two hearths on the reverberatory plan, and two series of ten separate ovens over each furnace. The ore is put into hoppers on top, from thence drawn or dropped on the top oven, where it gets sufficient heat to dry; it is then drawn and drops on the next, and so on as it gets heated; it is moved from one to the other till it reaches the main hearth, nearly cooked for discharging. The plan for this was furnished by J. Mosheimer. After being sufficiently roasted, the ore is drawn on the back side on to a sheet iron floor, mixed, cooled and dampened, placed in the tubs, of which there are five, so placed that the ore can be scraped into them, and then subjected to the action of chlorine gas. The gas is generated in lead generators, which are on a floor below the level of bottom of the tubs; the generators are set in wood boxes, and heated by steam. The liquor leached from the ore is drawn into a trough, discharged into a receiving tub, and the gold precipitated. One end of the chlorination department is fitted up in two rooms for a laboratory, where there is everything necessary for assaying and analyzing their ores; the whole arranged and fitted up in the most complete manner. On viewing the whole of these works, I could not but admire their simplicity and compactness. Every arrangement has been made to economize in labor and supplies, and the whole forms the neatest and best arranged mill now in California. Indeed, it might be pronounced "a model mill." The designer and Superintendent of the Havilah works, is Mr. Hyde, to whom we are under obligations for so obligingly showing us all of the improvements, and giving us some of the history of the undertaking. Yours, EL DORADO.

*It has been related by several that at some of the deep hydraulic claims in this State, gold bearing quartz lodes are intruded into the superposed gravel in such a manner as to lead to the strong inference that such protrusion occurred after the deposition of the gravel. An interesting relation of a very remarkable case of this kind in his paper inserted in this Journal of the 19th October last.

Mechanical.

The "Watt Equivalent"—The Unit of Power.

It is proposed to introduce a new dynamic unit called the "Watt Equivalent," in place of the old "horse-power,"—which is vague in its signification. Watt's experiments having led him to conclude that the average labor of a horse is the draught of 150 pounds at the rate of two miles and a half per hour, he reduced this to foot-pounds, as a measure of power. One hundred and fifty pounds of force, exerted at the rate of two miles and a half per hour, or 220 feet per minute, is the same as 33,000 pounds exerted at the rate of one foot per minute, or, in other words, 33,000 foot-pounds. The actual horse-power of a steam engine, must, then, be the mean pressure in pounds on the cylinder piston, multiplied by the velocity of the piston in feet per minute, divided by 33,000. From this about 13 per cent. is deducted for working friction, and in condensing engines, a further deduction of 12 per cent. is made for the power required to work the pumps.

It is evident, that the same engine, by varying the steam pressure and the speed, within the limits of safety, may be made to exert widely different degrees of actual power. The above calculation, therefore, only determines the rating of the engine, under the conditions which the builder or owner chooses to prescribe; and depends, moreover, much more on the boiler than the engine. Theoretically (and practically too, within the limits of safety and practicable speed) a small engine may show as many actual horse-powers as a large one. This classification affords therefore no constant or convenient method of comparison.

To supply this want, the notion of a "nominal horse-power" has been adopted. The nominal horse-power is a function of the size of cylinder and length of stroke. The theoretical unit here is the same as before—33,000 foot-pounds; but its use at all in this connection is a source of confusion and deception. The whole value of the term "horse-power," as *Engineering* says, consists in its meaning exactly what it professes to mean. The necessity for the proposed change is plainly apparent.

IMPERISHABLE IRON.—In a recent lecture by Mr. Wm. McAlpine, before the Polytechnic Association, of the American Institute, he spoke of white iron as being almost imperishable; and as being therefore most suitable for piles. Iron piles even of gray iron are now standing in some places in Europe which, after the lapse of fifty years, are as perfect as when they left the foundry. Corrosion is due to an improper quality of the iron. Mr. McAlpine mentioned that some water pipes at Albany, N. Y., which he had recently taken up after being buried and used for twenty years, were so sound that he had again inserted them with new pipes, and they were in all respects equal to the new.

IMPROVEMENT IN MAKING MALLEABLE IRON.—In making malleable iron from cast iron, if silicon is present, whether in combination with the iron or in the form of sand adhering to the pig, the formation of oxide of iron is required to effect its separation, in the form of tap cinder or basic silicate of iron, and this oxide is obtained at the expense of the metal. The sand which adheres to the pig thus causes a loss of from three to seven times its own weight of iron. Not only is there this loss caused by oxidation, but the time, labor, and fuel required to effect it is thrown away. It is, therefore, desirable that the presence of silicon, whether in the form of sand or otherwise, should be avoided. To prevent the loss of metal from this cause (generally amounting to from three to six per cent.), the iron is run from the blast furnace into beds of granulated or powdered iron ore. By this not only is the loss of metal reduced, but the time, labor, and fuel required to puddle it are also appreciably diminished, the iron is somewhat improved, and the production of tap cinder diminished. This improvement has been patented.—*Mechanics' Magazine*.

CAST STEEL BOILERS.—Experiments were recently made at the rolling mills of Messrs. Funk & Elhers, Hagen, Prussia, for the purpose of ascertaining the respective evaporating capacity of iron and steel boilers. Two new boilers, one of wrought iron, and the other of soft cast steel, each five feet in diameter, and thirty-four feet long, and so made as to stand five atmospheres "over" pressure, were used for the experiment. Each received exactly the same amount, in cubic feet, of water at the same temperature; both were treated throughout in the same manner, and the firing so regulated, by means of dampers, that the velocity of the steam when allowed to escape, was the same from each boiler. The same amount of coal was used for each. At the close of the experiment, which occupied several hours, the amount of water which had been evaporated by the iron boiler, was found to be 20,065 pounds, while that evaporated by the steel boiler, was 23,523 pounds. This amounted to 6,350 pounds for each pound of coal used in the first, and 7,467 pounds for same quantity in the last.

A second trial gave nearly the same result. A third experiment was made in verification of these, in which equal volumes of a strong solution of salt were used in the two boilers, to equal quantities of water. Analyses after evaporation, showed 20 per cent. in favor of the steel boiler. The average percentage of these three experiments was 19.24 per cent. The steel boiler had a shell one-third thinner than that of the iron.

RICHARDSON'S STEEL MAKING PROCESS. This consists in introducing air into the melted metal by means of the iron rake or "rahle" used for stirring it. This is tubular, and has a broad slit half an inch wide, and three or four inches long, through which the air passes. It is connected to the air receiver by a long india-rubber tube. The air is turned on before it is introduced, and kept on until it is withdrawn;—to prevent the aperture from being choked with cinders. By this arrangement, the iron has been brought to a "hoil" in ten minutes, instead of thirty, as by the usual one. The whole process only occupies one hour and a quarter; and the quality of the metal is said to be superior.

FILE HANDLES.—If file handles become broken, or split, throw them aside. It is true they might be repaired by wrapping a cord or wire around them, or inserting a nail or screw; but at the best they present a "botched" and sorry appearance, which is not befitting a neat workman. Seasoned maple makes the best handles, and a stout ferrule of brass or iron ought to inclose the end. Where the handles are not hored, and the mechanic would do it himself, let him disdain to employ any other means except a narrow chisel to fit them. Driving is sure to split handles, and burning with an old file-shank is unworthy of a workman. Use handles appropriate and proportioned to the tools for which they are intended, take time and care to fit them properly, and experience will testify that they will give better results and last longer; proving that "haste makes waste" even in the small matter of fitting a file handle.

"DUROMETER."—This is the name of an instrument for testing the hardness of steel rails. One was exhibited at the Paris Exposition. It is essentially a small drilling machine, so constructed as to register both the "feed" and the number of revolutions of the drill.

HARDENING MILL PICKS.—The following is considered an excellent bath for hardening mill picks: 2 gallons rain water, 1 oz. corrosive sublimate, 1 oz. sal ammoniac, 1 oz. saltpeter, 1½ pints rock salt. The picks should be heated to a cherry red, and cooled in the bath, without drawing the temper.

VERY HARD IRON.—Mr. Goudin, who some years ago made hard iron by combining with it a small quantity of boron, has now produced an article equally hard, by the use of phosphate of iron and peroxide of manganese. It cannot be forged, but is easily cast.

Scientific Miscellany.

CARBONATE OF SODA.—M. Kessler has patented in France the following simple and apparently economical process for making carbonate of soda. Common salt is first intimately mixed with sesqui-oxide of chromium, either alone or with oxide of manganese. Chromate of iron or chromate of lead may be used, and perhaps a good chrome iron ore. The ingredients are heated to redness in a furnace and subjected to a current of steam. The hydrogen of the steam unites with the chlorine of the salt, forming hydrochloric acid. When the evolution of hydrochloric acid gas ceases, the charge containing chromate of soda is withdrawn, and, after being mixed with a proper proportion of coal, is again heated without steam, when sesqui-oxide of chromium is reproduced, and the carbonate of soda thus formed is separated by lixiviation. The sesqui-oxide of chromium is again ready to be mixed with salt, and may be used for an indefinite time.

AUTOMATIC LIGHTNING GUARD.—At the late Paris Exposition, T. Picco, of Alexandria, exhibited a novel construction of lightning guard, called automatic. When the atmospheric electricity enters a telegraph station, it fuses a short piece of thin iron wire, and by this releases a spring, which puts the line directly to earth. The end of the line is connected with a brass pillar, on the top of which a metallic beam turns horizontally. One end of the beam is pressed against a contact leading to earth by means of a helical spring round the pillar. When in use, the other end of the beam is secured by about an inch of thin iron wire to the terminal leading to the apparatus separating the beam from the earth contact, to which it, however, returns as soon as the wire is fused.

FUNCTIONS OF THE ROOT.—M. Corenwinder read a memoir before the French Academy on the functions of the roots of vegetables, in which, he concludes from experiments made by him, that the root does not obtain all the carbonic acid found in it by absorption. On putting the roots in communication with a certain proportion of this acid, either in a gaseous state or in solution in water, he invariably found the quantity present in the roots greater than that which had been supplied to the plant.

UTILIZATION OF COAL GASES.—Messrs. Carver & Co., of St. Etienne, France, have successfully utilized the gases given off in converting bituminous coal into coke. The gases are collected, drawn off through pipes, and cooled. From the liquids condensed, benzene, naphthalene, sulphate of ammonia, and several dye-stuffs are made, and the uncondensed gas is used for illuminating purposes. The process is said to give a profit of 50 cents per ton, and if applied to all the coke made in France, would effect a saving of \$2,000,000 annually.

VAPOR OF MERCURY.—An atmosphere containing vapor of mercury is fatal to plants. The remedy is sulphur,—which neutralizes the mercurial vapor by combining with it, and forming sulphuret of mercury. If sprinkled over the leaves of plants exposed to such an atmosphere, its yellow color will be gradually changed to gray, while the plants continue to flourish. Medallions, and other articles cast in sulphur, are made to assume a metallic appearance by exposing them to vapor of mercury.

A NEW COLOR.—A new green color is prepared by M. Wiederhold, by mixing a neutral soap of linseed oil with a salt of copper in solution, or by combining directly the fatty acid of the oil with oxide of copper. A paste of a fine green color is thus obtained, which may be immediately employed for calico printing, etc. It can be diluted with spirit of turpentine or benzole until it has acquired the necessary degree of fluidity.

THE METAL THALLIUM.—Thallium is the softest of the alkaline metals, and may be scratched by a point of lead; it melts at 550 degrees Fahrenheit, and can be easily fused over a gas jet, its surface being protected from the air by a stream of cool gas. In appearance it resembles lead, is of a bluish-white color, and leaves a trace similar to lead on paper, and has about the same density. Its solutions, like those of lead, yield a black precipitate with sulphuretted hydrogen, a yellow with iodides and chromates, and a white one with chlorides. The metal was first publicly shown at the London Exhibition in 1863, and the same year a mass shown which weighed about a quarter of a hundred weight. It has been suggested that one of its uses may be to furnish a green flame, which might be used for signals. Eight parts of chlorite of thallium, two of calomel, and one of resin, yield a splendid light on being ignited; its extraordinary intensity and mono-chromatic character enabling it to penetrate through a hazy atmosphere, which alters altogether the color of the ordinary green lights produced by the salts of baryta.

DETECTION OF FIRE DAMP.—Mr. Ansell's plan was based upon the diffusion of gases. His apparatus takes various forms, the most simple being a thin india rubber balloon full of atmospheric air, having a ligature of linen bound round its equator to prevent its lateral expansion. This being placed in any part of the mine, it is proposed to connect it by a wire with any ordinary electrical bell at surface. As the balloon expands upwards by the diffusion of the carburetted hydrogen into the air which it contains, it releases a catch, and connection being made by a simple mechanical arrangement with the electrical or magnetic apparatus, the bell is rung. After this signal has been given, the fire-damp indicator has only to be removed for a few minutes into good air, and it is restored to its original state.

PRE-HISTORIC IMPLEMENTS.—An important discovery has been made at Bordeaux and communicated to its Scientific Academy. Within the space comprised between the rues Victor and Trois-Conile on one side, and du Paugue and Rohan on the other, a pre-historic lacustral station has been discovered. M. Delfortrie assigns an age of seven or eight thousand years to this station, marked by a thick bed of ashes covering a prodigious quantity of oyster shells, mixed up with flint hatchets and implements in perfect preservation, and what is most remarkable, handles of instruments of weapons made out of metatarsal bones sawn half-way through the middle of their diaphyses. As the station bears a strong relation to the Kejolenmoddings, of Denmark, it is therefore older than the lacustral villages of Switzerland.

CONIFERINE.—The *Journal des Connaissances Medicales* describes as follows the preparation of coniferine, extracted from fir. The wood is stripped of its bark, rasped, and subjected to the action of a press. A thick juice is thus obtained, which, after being heated, strained, and evaporated, deposits its crystalline needles of coniferine, which is bitter; the mother ley, on the contrary, is sweet. The crystals are redissolved in water, dissolved by lampblack, and then recrystallized in weak alcohol. Coniferine is but little soluble in cold, but dissolves readily in boiling water; it is scarcely soluble in alcohol, and not at all in ether. The watery solution is bitter, is not precipitated by the acetates of lead, and gives no color with perchloride of iron. Treated with concentrated sulphuric acid, coniferine changes from white to a deep violet.

GAS FROM A VOLCANO.—M. Fourné succeeded, after great trouble, in collecting some of the gas which arose from the sea during the volcanic eruption of the Azoree in June last, which he has found to be entirely free from carbonic acid, and rich in oxygen.

PHOSPHORUS.—People who are engaged in the manufacture of matches, must have perfectly sound teeth. If their teeth are at all decayed, the phosphorus, which has a great affinity for bone, attacks their interior surface, ultimately causing, in some cases, caries of the jaw.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

74,630.—WATER HEATER FOR BATHS, TUBS Etc.—William H. Thomas, Sacramento Cal.

I claim a steam-coil heating furnace, submerged in water, and supplied with air from the top, and provided with a tank, E, and deflector *b*, all constructed and arranged substantially as herein shown and described.

74,281.—IMPROVEMENT IN FIRE ESCAPE LADDERS.—Daniel Hayes and William Free, San Francisco, Cal.

We claim the combination and arrangement of the curved and grooved arm *a*, with the hinged ladder *C*, winding-roller *I*, rope *H*, and platform *B*, substantially in the manner shown and described, and for the purposes set forth.

The object of this invention is to provide a ready means of sending up or elevating ladders to a greater or less height against a burning building, so that the inmates may escape or the fire be subdued. To accomplish this a common carriage is provided, with a rest or holder upon the back part, on which a series of ladders are placed when not extended for duty. At the front end of the carriage is placed a turn table. Trunnions are attached to each side of the ladder, operating in upright pillow-blocks, pivoted upon the turn-table. Back of the trunnions and pillow-blocks is placed a hand roller, resting in upright standards, with a cord or chain passing around it, which extends over a pulley in the upper end of the main ladder, both ends of the rope being fastened to a clip which is attached to a second ladder, which slides along the first or main ladder by using the hand roller. Extending from the turn-table, placed back of this hand roller, is another roller, having its bearings on curved arms. This roller has a ratchet, in which a pawl works, having its bearings on a standard upon one of the curved arms. A cord or chain, one end of which is attached to the roller, and the other end to the lower round of the main ladder, passes over a hese-plate with a grooved, curved arm, by which the ladders are raised at the desired angle.

RECENT INVENTIONS.

IMPORTANT PHOTOGRAPHIC IMPROVEMENT. Mr. Joseph Buchtel, of Portland, Oregon, has recently devised what is said to be a very important improvement in printing pictures from negatives. The invention is described in the *Oregonian* as follows:

There has already been a complaint among photographers, that no perfect arrangement was known, by which an accurate, clear and sharp impression could always be taken. The trouble has always been that no contact pad has been invented which would hold the sensitive silver plate on which the pictures are printed, in perfect, air-tight contact with the negative glass. Every one has noticed that nearly every picture, even among the best, is blurred or indistinct in some of the minute lines. This is because the silver paper was not closely pressed in those parts upon the glass plate. The pad generally used is of felt, the finest of which has small pits and inequalities in its surface. Wherever there is a pit there will be a defect in the picture. If there are 100 of these little pits in a square inch, there will be 100 places in the picture where the minute lines are not brought out, and hence a blurred appearance. The platen board, over the pad is perfectly straight; now if the negative glass on which the pressure is brought, be warped, it is plain that some places will be pressed hard, while others will not be pressed at all, or only lightly. Then the picture will come out sharp and clear in the hard pressed places and blurred in the others. Such pictures are valueless, and hence there must be great waste of silver paper, as well as of the time of the operator. This invention is designed to take the place of the felt pad in common use. It consists of an elastic bag, made of very fine, soft and pliable india-rubber, air-tight, in two compartments, which lap each other by means of an ingeniously arranged suture. This bag may be filled with air, gas or any fluid. It will be used in the same manner as the old pad. The negative will be laid in the printing frames, the silver or sensitive paper laid on the negative, next the pad and

then the pressing hoard or platen. Every photographer will see at once that the elasticity of the bag will accommodate its surface to that of the negative glass. That is to say, if the glass is convex, the air or fluid in the bag will flow, under the pressure of the platen to those places which are low, and the surface of the bag will become an exact impression or counterpart of the glass surface. No part of the negative's surface, no matter how uneven it may be, can escape the pressure, and the pressure will be exactly equal everywhere. There will be no vacuum between the pad and silver paper, nor between the latter and the negative glass, hence there will be no discoloration of the silver paper which always occurs from exposure to air. These are not all the advantages which are secured by Mr. B's invention, but they are sufficient to recommend it to universal use, the cost being inconsiderable. He has taken the proper steps to secure a patent. Since the art of photography has been known, hundreds of attempts have been made to find a contact pad which would secure the results which Mr. Buchtel's claims will invariably follow the use of his invention—but heretofore without success. It is simple in its principles of operation, and the only wonder is that it had not been thought of long since.

SHEEP SHEARING BY MACHINERY.—Much ingenuity has been expended, within the past three or four years, to get up an efficient device for shearing sheep by machinery. Several machines have been for some time before the public, and others are still coming forward with what are claimed to be additional facilities for effectiveness. Mr. D. Peterson, of Fredericktown, Md., is among the most recent inventors in this line. He asserts that with his machine one man can shear about as fast as another can catch and bring forward. Another man in Nashua, N. H., name not given, claims to have a machine with which he has sheared a sheep in three minutes. Machinery is constantly improving and enlarging human resources; and a fine field for invention is opened in this growing department of industry. Whatever tends to cheapen or facilitate labor in any department of husbandry, adds materially to the general wealth of the world.

DESIGNS.

2,915.—BOTTLE.—Louis Lacour, San Francisco, Cal.

MAMMOTH BELT.—The fact that good and reliable belting is being manufactured in this city, must be of interest to all who use that article. It is a business which requires the best of hides, well tanned, and carefully selected; the prime and solid parts only being suitable. We have visited the establishment of M. M. Cook & Son, corner of Battery and Broadway, and witnessed the various processes of stretching, cementing and riveting. They had just completed a belt for Marsh, Pillsbury & Co., double thickness, 24 inches wide and 150 feet long. This belt alone required eighty-two of the heaviest Spanish hides, weighing nearly two tons, and is probably the largest on this coast. It fully demonstrates their capacity, and shows the important fact that such things can be done here at short notice.

HARDENED PLASTER OF PARIS.—A correspondent of the *Scientific American* says that he has found by experiment that plaster of paris mixed with iron filings, makes a coherent mass of oxide of iron, which is very firm. The idea is, we believe, not new. We saw in New Haven, some twenty years ago, a garden walk, which, if we mistake not, was made of plaster of paris mixed with the turnings and borings from a gun-barrel factory. It was perfectly solid,—and had been exposed to the weather for years, without any signs of disintegration.

EFFECT OF ELECTRICITY UPON MELTED IRON.—At a recent meeting of the Polytechnic Branch of the American Institute, Prof. Fleury stated that the result of passing a strong current of electricity through molten cast iron, was such that it could be made directly into steel or wrought iron. The experiment had been lately made in Paris, and with great success. The Professor, however, claimed priority, as his original experiments date back six years.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
March 28, 1885.
CITY STOCKS.

In this class of securities the market continues quiet. Sales of San Francisco Gas stock were made at \$69.50, Spring Valley Water at \$62, and California Steam Navigation Co. at 70@71 per cent. North Beech & Mission Railroad stock was in the market at \$59 and \$60, buyer 5. The Merchants' Mutual Marine Ins. Co. will hold their annual meeting for the election of Directors on Thursday, April 2d. We refer the reader to our quotations of city stocks.

MINING SHARE MARKET.

The interest manifested in the mining share market during the past week has been rather on the increase than otherwise, and the list of stocks dealt in embraced twenty-three different companies, nearly all of which sold quite freely on nearly every day of the week. Those claims located in the Gold Hill district have been eagerly sought for at enhanced rates, and cover by far the greater proportion of transactions, while a very large business has also been done in the Virginia claims. The desire to invest where the prospects of an earlier ascertainment of the existence of ore in localities yet unexplored is largely in favor of Gold Hill. At present, the lower drift from the Imperial-Empire shaft is in upwards of twenty feet, and it will not take many months to know the true nature of the ground.

HALE & NORCROSS—is in less favor, some twenty odd shares changing hands in the Board, declining from \$2,750 to \$2,550, buyer 30, on the 26th inst. The present daily product of this mine is about 100 tons, and during the past week the average yield ranged from \$32 to \$38 per ton.

SAVAGE—continues to be largely dealt in, declining to \$150, advancing to \$164, receding to \$154.50, then selling at \$167, and closing at \$166. For the week ending March 21st, the ore product amounted to 1,095 tons, showing an average assay value of \$34.27. Of this amount, the north mine on the third station yielded 603 tons, and the south mine 208. Above the third station the main breasts are said to show considerable improvement, chiefly in the south mine.

OPHIR—experienced a very material advance, rising from \$199 to \$232.50, dropping to \$190 under a strong "bear" movement, rallying to \$225@215, and at the close selling at \$217.50. The foundation work at the new shaft for the pumping machinery is put up in a strong and substantial manner, and it will not be many weeks before the pumps will be in operation.

OVERMAN—was in good request at an advance, gradually improving from \$165 to \$185, declining to \$179, advancing to \$189, and closing yesterday at \$183. From the time work was resumed in this claim, on the 11th of February to date, the receipts of bullion aggregate about \$38,000, of which amount \$12,536 came to hand since our last issue. Reports are favorable concerning the 500-foot level. It is reported that some good ore is coming in on the 300-foot level.

GOULD & CURRY—met with less inquiry, selling within a range of \$625@600, and at the close realizing \$630. The ore on hand on the 1st instant, amounted to about 4,000 tons, and this amount has been augmented at the rate of twenty-seven or thirty tons per day. It has surprised the best informed that the yield of the old chambers has continued so long, and that they still promise well.

CROWN POINT—has been in fair request, advancing from \$2,000 to \$2,300, receding to \$2,100, again rising to \$2,300, and closing at \$2,250. The winze from the 700 to the 800-foot level is seventy-four feet in depth, carrying ore assaying from \$60 to \$280 per

ton, as per daily report. The drift on the 800-foot level is now forty-two feet from the west clay, and on the 21st instant, they passed through ten feet of ore, said to be worth from \$32 to \$34 to the ton, while some sixteen feet east the face of the same drift is again in good ore.

IMPERIAL—rose from \$260 to \$272, declined to \$263, and at the close sold at \$262. The receipts of bullion for the current month to date aggregate \$27,863 27. The product of ore is about the same as heretofore reported, eighty to ninety tons per day. The ore in the west drift does not improve in running north on it. The drift on the lower level is in and timbered about twenty feet from the shaft, and they will be ready to start separate drifts about the first of April.

KENTUCK—sold quite freely at an improved figure, rising from \$395 to \$450, then selling at \$420, and closing at \$420. Of the February yield, amounting to \$69,525 50, it required \$52,092 42 for expenses, etc., leaving a profit of \$17,433 for the month. For March account the first shipment of bullion amounted to \$5,641 88.

CHOLLAR-POTOSI—receded from \$262 50 to \$245, and closed at \$251. The ore product for the week ending March 19th amounted to 249½ tons, and during the same time 262 tons were sent to the mills. At the new shaft the bottom station is completed, and a start has been made on the incline.

YELLOW JACKET—sold at \$1,475@1,390, then at \$1,460, and closed at \$1,437 50. The drift on the Kentucky line is said to show very good ore.

BELCHER advanced from \$385 to \$400, receded to \$370, and closed at \$365. An assessment of \$25 per share was levied on the 13th instant. . . . CONFIDENCE was in the market at \$80@82. An assessment of \$10 per share was levied, payable on the 26th inst.

SEGREGATED BELCHER—was in the market at \$20@17 50, closing at \$19. Work is about to be resumed in this mine. Bodies of ore are said to exist on the 500 level, and so soon as reached, and the same level from the Overman ground is opened to the line, the ore will in all probability be raised through the Overman shaft.

EMPIRE—sold at \$285@280. . . . ALPHA rose from \$72 50 to \$85, then sold at \$82, and closed at \$84. . . . EXCHEQUER advanced to \$51, receded to \$49, and closed at \$50. . . . BULLION improved to \$83, and closed at \$80.

MARKET STREET HOMESTEAD ASSOCIATION.—J. S. LUTY, Secretary. Office, 305 Montgomery street, corner of Pine, San Francisco. 2v15

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. DR. BEER & JESSUP, corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with PURE GOLD—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 16v14-1f

Miners, Visitors to mining districts, R. R. EMPLOYEES, and TRAVELERS generally, should insure against all Accidents in the Traveler's Life and Accident Insurance Company of Hartford before leaving the city.

WM. MACDONALD & CO., Gen'l Agents,
7v16-q3p 121 Montgomery St., opp. Occidental Hotel.

Accidents.

The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required. WM. MACDONALD & CO., Gen'l Agents, 121 Montgomery St., San Francisco, Opposite Occidental Hotel. 2v16-3m

MEDICAL AUTHORITIES have announced that not less than one-fourth of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Massachusetts. His "Universal Neuralgia Pill" is pronounced on all hands, to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

Important to Californians.—Many inventors have lately had their claims for Patents seriously (and in some cases fatally) delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of honest agents, are none the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. The Mining and Scientific Press PATENT AGENCY has strictly complied with the regulations of the Department, and properly filed all necessary papers as Claim Agents.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Amador County.

Ledger, March 21st: Mr. Bigelow, who resides about three miles from this place, on the banks of Jackson Creek, informs us that he has struck diggings on his ranch from which he is taking out \$8 per day to the hand.

The Mahoney mine, located on Sutter Creek, has been sold to parties in San Francisco, for the sum of \$250,000.

Calaveras County.

Chronicle, March 21st: The Mokelumne Hill correspondent writes as follows: In my last communication I omitted to mention a mine on the north extension of the "Quartz Glen." It is called the "Houston claim." This mine was worked, to a considerable extent, up to the time of the destruction of Quartz Glen mill. Since then there has been but little work done, though I am informed that all of the rock worked at the time paid handsomely.

The next claim in importance, is the south extension of the Anglo Saxon mine. This ground is owned by Messrs. Pickering & Rider. The claim is very rich, though the work, as yet, is superficial. There are three openings in this mine. The greatest depth reached is 45 ft. The rock in all of them has the same characteristics, which are peculiar to this lead, viz: a large amount of native copper, together with the carbonates of the same metal. Silver, in the form of argentiferous galena, to the extent of \$31 per ton of ore, assayed; and what is more strange, is the unusual fineness of the gold, it selling readily for \$17.50 per ounce, as it comes from the mine. As to the value of the rock, 15 tons from the deepest shaft was worked at Harris' mill, Sandy Gulch, last summer; it paid \$40 in gold to the ton. I think the opening season will prove this and the Anglo Saxon claim, to be among the best in the district. There are several companies located on the same lead, but the openings on their claims are not extensive enough to judge of their future value. The next prominent claim is called the "Tiger." The location is excellent, having a deep ravine on each end of the claim, either of which will furnish sufficient water for steam and other purposes in connection with a quartz mill. This mine has been extensively worked in former years, by Hewes, Howe & Co. The pay chute in their works was 100 ft. in length, and the ore paid from the surface to a depth of 90 ft., at the average of \$20 per ton. At this depth the vein "pinched" to about three inches, though the walls and casings are perfect, and I have no doubt that further sinking on this part of the mine will develop as large and good a vein as they had in the surface works. The south extension of this lead is called the Smith claim. It has splendid surface prospects, but no work to speak of is done as yet. To the north of these mines is the "Ginn" claim. There has been a large amount of surface work done here, showing rock remarkably rich in gold.

Nevada County.

Transcript, March 21st: At Cottonwood, on the 10th inst., Samuel Clary found a nugget of gold weighing over 14 ounces. The prospects in that vicinity are very flattering. Scott River is quite low, and miners are commencing to work the bars.

Gazette, March 18th: The Banner mill is soon to be supplied with 10 additional stamps. It already has 20 stamps employed, but the number is not sufficient to crush the rock that can be raised from the mine. There are only two mills in Nevada County having 30 stamps each—the number that the Banner will have when the addition is made.

March 19th: S. N. Stranahan, Superintendent of the Chalk Mountain and Blue Gravel Mining Co., informs us that the main tunnel of this company, at the cascades, is now in 350 ft., and the channel was struck some ten days ago. Before the company had been "breasting" half an hour, it took out a two ounce nugget. The gravel prospects well. About half a mile from the above point, the same company has another tunnel in a distance of 120 ft., which has just tapped the channel, from which good prospects are obtained. This company also has a led rock tunnel at the North Fork of Greenhorn, which is in 120 feet, and from indications is but a few feet from the main channel. This channel is a continuation of the one at the Cascades. The company is now working only 10 men, but as soon as the weather will permit, they contemplate employing from forty to fifty.

The Red Diamond Co., immediately he-

low the Chalk Mountain and Blue Gravel Co's claims, at the Cascades, and on the same channel, has been taking out gravel from its tunnel that yields \$1½ to the pan. The tunnel is in 300 ft. Snow at the Cascades is about 6 ft. deep, and a serious impediment to mining operations in that vicinity. The successful opening of this great ancient channel, at the Cascades, will present a new field for gravel mining that has hitherto scarcely been touched. The amount of mineral ground embraced in the channel is incredible. However rich it may be in the precious metal, a thousand men in a century of time, with the benefit of all the appliances that human ingenuity has yet evoked at their command, would scarcely make a visible impression on this vast gravel range, the channel of a once mighty river.

Grass Valley *National*, March 19th: We hear a rumor on the street of the purchase of the Coe mine and mill, near town, by a San Francisco party, who, it is said, intends to commence operations in developing it in a very short time.

John Hearsch, better known as "Lucky John," picked up another specimen yesterday, of the value of \$10 in coin.

The owners of the Idaho extension of the Eureka ledge, have succeeded in striking the ledge in their claims in the 300-ft. drift. The ledge was not cut through, but enough was done on it to prove it to be a large one. The rock shows well in gold, and gives promise of being as valuable as the Eureka. The Idaho Co. own 3,100 ft. The prospecting has been through the hardest of rock, and has cost the company over \$30,000.

Placer County.

Dutch Flat *Enquirer*, March 21st: Messrs. McClure and Wentworth, who have been busily engaged for some time past in fitting up their claim, in Squire's Cañon, commenced washing on Wednesday last. They intend to work steadily throughout the season.

We made notice a few weeks since that Messrs. Baker Bros. had contracted for the building of an astrak, but since its completion it has stormed so hard that it was useless to try to work it; taking advantage, however, of the few days clear weather of this week, they put through a few car loads of their cement, and have had the satisfaction of a clean up of \$8 per car load.

Plumas County.

Quincy National, Feb. 29th: Hallsted & Sparks have stopped crushing rock at their mill in Granite Basin, on account of not being able to get rock from their mine fast enough to keep the mill running. They are still taking out rich rock, intending to start the mill again as soon as they can get a supply on hand sufficient to keep them running.

From Indian Valley we have the following items: The Crescent mill having completed repairs, commenced crushing rock on the morning of the 27th inst. They only started with 16 stamps, but intend running 24 in a few days. They have a large supply of rock on hand, some of which is supposed to be very rich.

The Whitney Co. have discovered some very rich rock in their mine, and have been engaged in crushing it this week.

The Indian Valley mill is running, and is, as usual, doing well.

Judkins & Kellogg's mill at Round Valley, is in full blast.

The Lone Star mill, at Greenville, is expected to commence operations in a few days.

The Caledonia mill has been crushing very rich rock until Thursday morning last, when some of the machinery connected with the pump, used in the mine, broke, which forced the stoppage of the mill. The Superintendent started for Marysville, for repairs. It is supposed the accident will result in the filling of the mine with water, which will cause a temporary suspension of operations in both the Caledonia and Judkins & Kellogg's mines, as they are connected.

The Bull Frog mine, near Rush Creek, has filled up with water, in consequence of the late rains, which causes a temporary suspension of operations.

Siskiyou County.

Yreka Union, March 14th: We understand that Mr. Rushmore, of Indian Creek, who is the agent of a San Francisco company, intends to open and mine the lower portion of Indian Creek. No doubt is entertained but that the lower portion of the creek contains a rich channel of gold. The reason it has not been worked before now, is on account of its depth and the difficulty of draining it.

Yreka Journal, March 13th: Scott River, at Scott Bar, is now quite low, and already permits miners to make preparations for working the bars.

At Cottouwood, on the 10th inst., Sam

Clary found a slug in his claim up Rocky Gulch, weighing nearly 14 ounces, also \$50 besides. The Brass Wire claim is prospecting \$12 to the pan, and rock pitching. The company commenced washing on Tuesday, and confidently expect to take out \$1,600 or \$2,000 in a cut 80 ft. long. All the miners have commenced work, and times will be livelier in the course of a few weeks.

Tuolumne County.

Sonora Democrat, March 21st: A Tuttle-town correspondent writes the following: I visited Mr. Patterson's mine to-day to look at some rock he had just taken out. I saw several tubs of decomposed sulphurets of iron and quartz that was literally filled with gold. Mr. Pearson piloted me down the deep shaft, and from the shaft into the drift, or tunnel, from which the gold is taken. The vein that contains the precious metal is six inches wide, and extends from the top of the tunnel down as far as they have worked. The gold glittering in the rock can be distinctly seen by the light of a candle. This vein can be distinctly traced for the distance of 400 rods, and will average six feet wide.

Yuba County.

Marysville Appeal, March 22d: The Rattlesnake Mining Co., of Brown's Valley, has been incorporated with a capital of \$240,000.

COLORADO.

Central City Register, Feb. 27th: There is considerable activity in bar-mining on South Clear Creek, this winter. At the head of Spanish Bar, Messrs. Bennett & Co. are sinking a shaft to work out the bed of the creek at that place.

Messrs. Schaffer & Clark have just commenced operations on the low bar at the mouth of Chicago Creek. We saw two sacks full of bed-rock dirt rocked out a few days since by Mr. Holverson, which yielded over two dwts. of coarse gold. He took the dirt from a shaft a few rods from Clear Creek, on Chicago Creek. One or two other parties are "coyoting" in the same vicinity, and making fair wages. Four or five parties are "drifting" between Idaho and Spanish Bar, and all say they are making more than grub.

Several parties are prospecting the creeks and bars below Idaho, and they get, generally, quite encouraging prospects. Gus. Reeder brought up three ounces of gold on Saturday night, the result of two days' sluicing (five or six hours per day) by himself and partner.

Mr. Theo. Lowe has commenced rebuilding his dam, with a view to starting up his mill as soon as possible.

Messrs. Schwartz & Mixer have recently struck a new lode in Virginia Cañon which promises to be a valuable one.

Work on the Bobtail has been stopped on account of the insufficiency of the pumps.

A piece of gold bullion weighing 272 ounces, and worth \$6,200 was to be seen yesterday at Warren Hussey's. It is the result of the last run made by E. C. Beach.

The owners of the Aurora lode inform us that Mr. Peregrine crushed for them last week, one and three-fourths cords of ore from their mine, which yielded 36 ounces and 9 dwts. of gold, worth in currency \$785. If they estimate their labors at \$5 per day, it will still leave a net profit, after all costs are paid, of \$410.

Charles Walker is building a new 18-stamp mill below Black Hawk.

We were shown yesterday samples of ore from the Munsell lode. It has four feet of crevice matter, six inches of which yields an average assay of \$2,100.

We saw yesterday, \$800 in gold bullion from one and three-fourths cords of ore from the Aurora lode.

Same, March 5th: John Wagner and others are erecting a shaft house on the Cash lode, in the upper end of Virginia Cañon. They are down 50 ft. showing an excellent body of ore which yields an average of \$195 per ton.

Mining was not stopped on the Bobtail as agreed upon. As they were about to shut down it was discovered that the pumps were rapidly mastering the water, so it was determined to go on. It appears that the Bobtail, Gregory, Fisk, and some other lodes are so associated that the water runs from one to another, and when one is troubled with water the others will be also.

Georgetown Miner, Feb. 27th: The ore now being raised from the Baker mine, shows by assay from \$200 to \$500 silver per ton.

The finest specimen of silver ever subjected to our inspection, was shown us on Tuesday by Mr. Crow. It was a hlock of galena weighing some six or eight pounds, taken from the Terrible lode. The galena was completely impregnated with stephanite, the fine cubes of the galena in many

places being cemented together with this rich substance.

Garrott, Martine & Co., have started up their reduction works.

Mr. Herrick will soon commence purchasing galena ores for the Georgetown smelting works.

There is more mining being done on Brown Mountain and vicinity, at present, than in any other portion of the country.

Denver News, March 4th: We saw at the mint this morning a bar of gold bullion weighing 33 4-100 ounces, and valued at \$540.42 in coin; also four bars of gold bullion valued at \$1,722.93. There are a number of other bars not yet assayed.

DACOTAH.

The second number of the *Sweetwater Mines*, gives the following items in relation to the mines: A 10-ft. shaft on the Maggio Evans lode displays a vein of ore 10 ft. 6 in. in width. The Kentucky Home lode, at a depth of 30 ft., shows seven ft. of ore. The Walrus lode has a vein over 10 ft. wide. On the Atlantic, a tunnel has been run, striking the vein 40 ft. below the surface, and showing a vein 22 ft. in width. The Miners' Delight lode, yields at the rate of 20 ozs. of gold to 900 lbs. of ore. New placers have been discovered on Slate Creek. On Rock Creek there are 196 claims.

From a private letter written by J. W. Meniffee, dated Rock Creek, D. T., Feb. 22d, 1868, we extract the following: I receive many letters of inquiry to know my views of this country. We don't find or pick up gold by the hushel or peck, neither by the hundreds nor twenties. Placer diggings are limited, and what there are I don't think are as rich as some men feel disposed to represent them. I have discovered and own among the best of them in this section, and I would give any one to-day their choice in them for \$1,000. Ounce diggings, I think, will be the best we will have in this section. That sum is as much as any of them will pay, and the number of claims producing that amount to the hand will be very limited indeed. I anticipate making about a half ounce to the man daily in my claims here in Rock Creek, but I don't think it will pay all through the creek that well, for it will be very hard to work the most of it. The creek has been located and recorded for a distance of ten miles, and if should pay the full length it will make a lively camp around here; but if Rock Creek fails I think the camp about played out as to placer diggings. There has been a big stampede in the last 10 days to Wind River for placer mines, where they can pick up the nuggets on top of the ground—(an Indian story.) The facts about it will not be known for a month yet, for it is over 100 miles from here. The generality of miners here are but poor judges of quartz, and a man only familiar with silver hearing quartz is a poor judge of auriferous rock. Any man can tell when he sees the gold in the rock, but it is hard to tell what it will pay by mill process. There are many fine ledges here already discovered, and many more to be found, but the most of them are quartz—not gold. I think if they average from \$25 to \$50 per ton they will do extraordinary. Many that have been located will pay nothing.

IDAHO.

Boise World, Feb. 29th: During the eight months preceding Jan. 1st, of this year, Messrs. Koenigshberger and Heckman of this city, and Mr. Burkitt of Pioneer City, assayed over \$1,250,000 of gold and silver. It was the product of this basin.

Our miners are preparing to resume work in every portion of our mining districts. The ditches are being made ready to convey water, and the owners of bar, gulch and hill claims are busily at work clearing away obstructions. None of our mining population talk of going off in quest of other diggings—to Willow Creek, Sweetwater or elsewhere.

Same, March 4th: On Monday morning work was begun for the season in a number of claims in this vicinity—in Dnnn's claim on Bonum Hill, on claims up More's Creek, and along Elk Creek.

Same March 7th: The miners are preparing their claims all about the Basin, and many are already at work. Things begin to look bright in trade generally.

From Mr. C. Lee, who lately made the journey from this city to Rocky Bar and back, we derive the following items:

Men are actively engaged in McNulley's Wide West, Jackson & Co's Golden Star, and the Confederate Star ledges, and very rich ores have been taken from each of these ledges, which are ready for crushing. It is estimated that from \$60 to over \$100 per ton will be the product of these ores.

Preparations are going on to bring in Col. O'Neil's fine large mill, which will quite surely be in operation this season.

Lee Motherhead is on the way from the

East with a large mill for the Yuha Atlanta ledge. Duffries is also coming from the East with a mill for the Volcano mines at Canas Prairie; and Maj. Taylor and Wm. S. Stevens will soon have a splendid mill for their Grey Eagle ledge in Yuha, which they procured in San Francisco.

A very prosperous mining season, in quartz, is looked for by all in Rocky Bar, and Altums generally, and preparations for a wider field of placer mining have been made already this season.

There was about two ft. of snow at Rocky Bar when Mr. Lee left there, Feb. 28th, but this did not prevent work in the mines.

Owyhee *Avalanche*, March 7th: The Pickens & Edwards is the name of a ledge newly discovered at Cottonwood, midway between this place and Flint. The vein is said to be somewhat over 18 inches in width. Some pieces of the rock shown us, bear evidence of being very rich in silver.

Work has commenced in good earnest on the north extension of the Allison mine. The shaft is now down 84 ft., which shows a vein four ft. between the casings. The quartz is of a soft decomposed nature, easily taken out and does not require blasting.

There is enough ore from the Ida Elmoro mine on band at the Lincoln mill to keep it running five or six weeks.

Portland *Oregonian*, Feb. 25th: A private letter from Warren's Diggings states that the rock from the Hie Jacet mine, recently crushed, yielded \$300 per ton. The camp is in a state of jubilation over the result, and other companies are pushing forward their work with great confidence.

NEVADA.

Esmeralda.

Virginia *Enterprise*, March 19th: Pine Grove is one of our most promising outside districts, and will be apt to receive very considerable accessions to its mining population during the coming summer from this vicinity. All the principal mines are yielding well in gold bullion and many new and promising leads are being opened. We were yesterday shown some very fine specimens of gold bearing quartz from leads that have not as yet made a noise in the world. The Wilson, Wheeler and other well known leads, still continue to yield large amounts of rich ore; all the miners in this district are employed either at work in mines of their own or in the mills and mines of others, and the camp is, all things considered, one of the most prosperous in the State.

Reese River.

Reville, March 7th: We saw yesterday several of the most elegant silver bars ever produced in the city. They were made of silver obtained from ore chloridized in the new furnace patented by C. A. Stetefeldt, and were skillfully finished and engraved by Z. Veuve of this city. The bars are intended for souvenirs by the inventor of the furnace.

March 9th: The stage which will depart to-morrow for Belmont will carry a lot of castings for the mill of the Combination Co. They were executed at the Austin Foundry.

By the stage which arrived from Belmont on Saturday night three bars of bullion arrived from the Combination Co.

There may be seen at the office of the Austin and Belmont Co., a choice lot of samples of ore from the Silver Bend district. They were obtained from the Belmont Co's claim on the Transylvania, and W. F. Leon & Co's claim on the El Dorado, two of the great ledges in the district. We learn that the samples were selected from the mines by Prof. Vincent, who came from London with Col. Buel for the avowed purpose of examining certain claims in the district of Silver Bend and perhaps in other districts in this part of the State. The samples are large and fine, but they are no better than those which were embraced in the collection sent to the Paris Exposition.

Our attention was called this morning in the assay office of David Landbom to a small but very valuable bar of bullion. It was produced from ore taken out of the Gilligan mine of the Social and Steptoe Co. in Egan Cañon. It weighs 517 ozs.; is .41 fine in gold and .895 fine in silver, and has the stamped value of \$1,036. The bullion formerly averaged only about 10 fine in gold, in the same process of reduction. The ore which produced this last bullion was obtained from the deepest working of the mine.

March 13th: It is known that the mill of the Belmont Co. has been closed for several weeks, in consequence of the fact becoming patent that they were not saving 30 per cent. of the silver contained in the ore produced by the Transylvania mine by the process of amalgamation without roasting. The superintendent closed the mill until it could be furnished with roasting furnaces. The slight amount of silver obtained in the mill of the company has been clearly shown by

Prof. Vincent, who gave the tailings a critical examination. He selected and assayed numerous samples from the heap, which gave an average yield of \$52 per ton. The accumulation of these tailings is so great that it is estimated they contain upwards of \$100,000 worth of silver. We learn that the few weeks' experience of the 40-stamp mill of the Combination Co. has led to the same result; and they were engaged in adapting the whole battery—20 stamps of which were adapted to crushing the ore wet—to crushing the ore dry.

The Keystone mill, which has been lying idle for several months, will be set in motion again on Monday next. It has been put in perfect condition, especially in the amalgamating department, which is furnished with new pans.

The production of bullion from the Florida mine during the month of February was very handsome. Eighty-one tons of ore were sent to the California mill for reduction, which yielded \$21,007 in gold coin. The ore, which represented the mass of the vein, averaged \$259.34 in coin per ton.

March 16th: On Saturday afternoon the Belmont stage brought to the banking house of John A. Paxton & Co., five bars of bullion from the mill of the Combination Co.

The California mill of J. R. Murphy, has been closed for the present.

A new district, called Robinson district, has been discovered about 100 miles southwest of Egan. Sixteen lodes of astonishing size—the smallest 16 ft. wide and the largest 150 ft. wide have been discovered. All of the lodes can be traced for hundreds of feet, and the rock is certainly none of the poorest. The country rock in which the veins are imbedded is granite.

Silver Bend *Reporter*, March 7th: Antonio Borques has purchased from the Red Mountain and Silver Peak Co. the 4-stamp mill formerly used in crushing the gold bearing rock of Red Mountain, which will be removed and reerected at this place as soon as the roads and weather will permit.

During the month of February there was shipped from Austin, bullion valued at \$151,635.33.

A correspondent of the Virginia *Enterprise* of March 18th, writes: I mentioned in the *Enterprise* some time ago that a series of mines in Morey district had been sold to Mr. David S. Ogden, of New York, for \$32,000 in coin. The Magnolia lode of the series, on which considerable work has been done recently, has improved greatly in appearance. At the depth of 85 ft. the vein shows two ft. of pay ore, and the drillings from a 2-ft. hole gave an assay of \$1,020. By numerous working tests at the mill of the Old Dominion Co., at Hot Creek, the ore was proved to range from \$90 to \$250 per ton, there being apparently considerable surface rock at command which will pay \$120 to \$150 per ton.

The Fortuna mine, on Lander Hill, is yielding very fine ore. A hatch just worked at the Manhattan mill gave a pulp assay of \$820 per ton.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, March 14th: Wells, Fargo & Co. shipped from their office in this city, during the past week, 2,943 ounces of assayed bullion, valued at \$71,087.38.

March 18th: Work was yesterday resumed on the Segregated Belchor mine, after lying idle some seven months. It is thought that paying ore will at once be taken out. Mr. McCullough, Superintendent of the Overman, will have charge of the work.

March 19th: Two new boilers have been put into the Petaluma mill—also a lot of new amalgamating pans—and, with everything in "ship shape," the works have again started up. The mill is capable of crushing 50 tons of ore per day.

Judging from present talk and indications, all the prominent leads on Cedar Hill will be worked during the coming summer, and even a few leads that are hardly known by name. We saw some ore a day or two since from a nameless lead on the hill, that showed by assay the handsome sum of \$36 per ton. It is well known that the Sacramento mine contains a vast amount of pay ore—gold bearing quartz—and parties have been at work in the mine all winter, or whenever the weather would permit. By working the ores of the hill for gold alone—they contain but little silver—there can be no doubt but they can be made to pay well, as a large amount per stamp can be crushed daily; then the trouble and expense of amalgamating in pans will be dispensed with, only copper plates and sluices being used to save the gold. That there is an exceedingly rich chimney in the hill that

has never yet been found, no miner at all acquainted with its history can doubt. The dirt on all its slopes is rich in gold, and on the southern slope, near the old works of the Sierra Nevada Co., a party of miners a few years since made big wages at washing the dirt with a hydraulic apparatus. They also sold the rock (which was nearly all quartz forked from their sluices) to the mills for a good price. While thus working they found many pieces of quartz that were literally covered with gold. We saw one piece found in the claim that after being broken could not be separated on account of the wires of gold running through it. The chimney from which this rich dirt and rock came has never yet been found, but is undoubtedly somewhere above the old hydraulic works. That the hill is rich in gold no miner can doubt, and we shall yet see many mills running on Cedar Hill ore. We are satisfied that some valuable discoveries will be made in that vicinity before next fall.

Trespass, March 14th: Dispatched from Wells, Fargo & Co's office in Virginia, this morning, 15 bars of bullion, weighing 974 pounds, and worth \$42,611.04.

OREGON.

Jacksonville *Sentinel*, March 7th: We are informed that the claims of McDaniel & Therman, at Sterlingville, is averaging \$20 per day to the band, without any prospect of giving out as yet.

The claim of Johnson & Co. is paying an ounce per day to the hand. Messrs. Kleinhammer and Mentz are taking out good pay—about \$10 per day to each man, and the well known claim of Saltmarsh & Co. is panning out as usual.

Dalles *Mountaineer*, March 7th: The Canyon City correspondent writes: The miners are preparing for work along Cañon Creek. They are clearing away rubbish, repairing pumps, wheels and derricks. At Marysville and vicinity there will be several new hydraulics put up this spring. Thompson & Co. will put up two. They have one on their claim ready for work as soon as the frost is out of the ground, and another built which will be put up in a short time. Clark & Co. will run two on Windlass and Rich Gulches this season; and on the hill west of Cañon Creek, Beasley, Bollinger & Co. are building a fine large hydraulic. Wolfinger, Long & Co. will run their Town Gulch hydraulic as soon as water comes.

Salem *Unionist*, March 10th: Mr. Salmon, Supt. of the quartz mill in the Santiam mines, arrived yesterday, direct from the diggings, where he has been all winter. The snow is four ft. deep on the summit. Mr. Salmon traveled on snow shoes until he reached the lower spurs of the mountains. He brought a gold brick weighing 32 ozs., taken from quartz quarried from the White Bull lead. He is sanguine that he can make the mines pay, and designs returning as soon as the snow goes off.

Portland *Oregonian*, March 12th: The Cañon City correspondent gives the following information: The mines in this vicinity are numerous. Several very rich quartz ledges have been partially developed, among which is the famous I. X. L. ledge, known as one of the richest in Eastern Oregon. The owners of this ledge are engaged on a tunnel some 600 ft. in length, which will be finished in a short time.

On the north side of John Day river is Dixie Creek, a camp of some importance, which employs about 200 miners, mostly Chinese.

North of Cañon City, on the Middle Fork of John Day river, is Elk Creek, running in from the north, which is considered by competent judges as the best quartz mining district in this State. The ledges are mostly lying idle for want of capital to work them successfully. There are about 60 persons at this place. Twelve miles above on the same stream is Vincent Creek, with but few mines. North of Vincent Creek about 15 miles are Olive Creek and the Burnt River diggings, and six miles north of Olive is Granite Creek. These camps are the most important points in that section. About 250 miners, half of whom are Chinese, find employment there.

Sixty miles north of Cañon City is the North Fork of John Day, where there has been some excitement over the discoveries of the past season. But the truth is that few claims have been found which justify working, and the place is declining.

NEW MEXICO.

Santa Fe *Gazette*, Feb. 29th: Governor Mitchell who arrived from the Morano mines on Thursday of last week, reports most favorably of the mining prospects for that region during the coming season.

There are now in and about the mines between 2,000 and 3,000 persons waiting for the opening of spring weather

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

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It is simple, concise, and well arranged. It seems to be a work of great value.—*John Suedt.*

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I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—*Martin Kellogg.*

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You have brought the results of a profound analysis, and made them available, in a practical form.—*I. H. Bragdon.*

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and advocates at the forum.—*John Curry.*

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. It will soon become a necessity in every lawyer's library.—*Charles A. Tuley.*

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This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and style cheap and convenient, and in reach of the humblest.—*Alta California.*

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W. B. EWER, SENIOR EDITOR.

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Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. Raney is our duly authorized agent for Sacramento County. Nov. 23, 1867.

Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, March 28th 1868.

Notices to Correspondents.

CURIOS.—Tellurium has sometimes been found in the native form, containing, however, small quantities of iron and gold. It is also found as tellurous acid, telluride of bismuth, telluride of lead, etc. We are not aware of any instance in which any of the metallic compounds of tellurium found native has ever yet been discovered that were entirely devoid of the precious metals; the lead compound being usually found the most free. Berthier analyzed an ore of this character, which he found to consist of tellurium 13.0, sulphur 11.7, lead 63.1, gold 6.7, antimony 4.5, copper 1.0—100. The atomic weight of tellurium is 64. It is usually classed among the metals as possessing properties between antimony and bismuth. In the metallic form, its sp. gr. is 6.2, is of a tin white color, with a strong metallic luster, very brittle and easily pulverized. When obtained in a finely divided state by precipitation or sublimation, it forms a brown powder.

JUVENILE.—is informed that a geological map is simply a topographical map, colored in such a manner that certain colors indicate the geological character of the surface or outcropping strata, in the various parts of the country so mapped. Metallic veins are noted by lines, and the species by employing symbols for the various metals; the symbols used generally being the old alchemical ones, such as you see on the bulky bottles commonly placed in the windows of druggists shops. These symbols also possess a mythological meaning; thus the one for lead also means Saturn; for copper, Venus; for tin, Jupiter; for silver, Luna or the Moon; for iron, Mars; etc. The direction of dips are represented by arrows, by which means synclinal and anticlinal axes are also denoted.

A YOUNG ASSAYER, Silver City.—The color of gold will occasionally vary, in consequence of either the flux employed in melting or the mode of refining. The proper color for pure gold, is a beautiful bright yellow, inclining very slightly towards red. When horax has been employed in any considerable quantity as a flux, its color is somewhat paler; but it again assumes its ordinary shade on being again melted along with nitre or common salt. When reduced to very thin leaves, it is transparent, and by the transmitted light appears of a yellow color. Vauquelin suggested that its true color under such circumstances, is blue, and that the green appearance is caused by the admixture of yellow rays of reflected light. M. Buisson, considers that gold in an extremely minute state of division, assumes a purple color.

THE FIFTH WHEEL.—The central wheel, running in a groove, and attached to French street cars, of which we have spoken, and which finds great favor in Paris, was invented by an American named J. B. Wickersham.

JAPANESE TEA SEED.—Some of this seed has been received in this city. Those who have made the experiment, say there is no difficulty in cultivating the plant here. It is said to belong to the order Camelia, is perennial, and is a handsome shrub.

The Suez Canal.

Much misapprehension appears to exist with regard to the present condition and progress upon this public work. It was recently stated at a meeting of the Mechanical Engineers' Society of Birmingham, that out of the 70,000,000 cubic yards of excavation involved in this work, only 18,000,000 had thus far been removed. This statement was subsequently officially corrected, in a statement by one of the Canal Directors, from which it appears that on the first day of December last, 30,000,000 yards, out of the 70,000,000 called for had been removed—nearly one-half. At that time, 1,350,000 yards were being removed monthly, by the aid of thirty-nine dredging machines and 10,000 laborers; but twenty-one additional machines were being fitted up, which, with their additional complement of laborers, would soon be at work; and under such increased facilities it was confidently anticipated that the entire work would be completed prior to the contract term, October 1st, 1869. The terms of the contract call for a penalty of \$25,000 for every month's delay, beyond that time, and allow \$25,000 additional payment for every month of time gained. The contractor, M. Lesseps, expects to realize something from this contingent arrangement. The capital of the company is said to be largely in excess of the amount required for the completion of the work—nearly a million dollars of surplus has been counted upon. It also has a large concession of land adjoining the canal, which, with the near approach of its completion is rapidly appreciating in value—especially that lying in the vicinity of Port Said. It is thought that when the work is completed this land will be worth nearly if not the full cost of the work—leaving, by its sale, the canal nearly or quite free of cost to its projectors.

Many have supposed that because some smaller vessels have actually passed through, from the Mediterranean to the Red Sea, the canal was completed; but such is far from being the case. The work appears to be carried on by snail-paced excavators, much after the manner of dredging docks; and as the work is in progress along the entire line, it is even now available for light draught vessels. It will be recollected that the English government recently sent a small steamer through the canal, to be employed in the Abyssinian expedition against King Theodore.

If this work is successfully completed, and the two ports or entrances made secure, it will be the most important and useful engineering work ever accomplished by man. It is significant of English policy to note the action of that government as the work proceeds. The moment the English perceived that the French were in earnest in the matter of its construction, that government seized the little island of Perim, which is so situated that it may easily be made the Gibraltar of the Red Sea, as by its proper fortification no ship can enter or leave that sea except by permission of the holders of this island. Later, when it became apparent that Port Said could and would be made a safe refuge for a French fleet, the English secured to themselves the occupation of the harbor of Suez for a similar purpose. Finally, when the successful completion of the canal had become a foregone conclusion, the Abyssinian expedition was decided upon. England is determined not to allow the French any vantage ground in the Red Sea; their joint occupation will hold it free to the commerce of the world, and afford an additional guarantee that those great nations shall forever preserve peace between themselves.

SORGHUM SYRUP.—It is a fact, we imagine, of which but few are aware, that over 40,000,000 gallons of sorghum syrup are made in this country annually.

Maple Sugar.

Few, we imagine, are aware of the large amount of maple sugar and syrup which is annually produced in this country. As long ago as 1860, the census reported a fraction over 20,000 tons of sugar, and upwards of one and a half million gallons of syrup, as the product of a single year. Doubtless much more was manufactured, of which the census takers got no account. If we estimate the syrup at \$1 a gallon, and the sugar at fifteen cents per pound, we have the snug little sum of nearly \$8,000,000, as the total annual value of this delectable sweet. New York takes the lead in this production, giving us over one-quarter of the entire amount; next comes Vermont, with but a small fraction short of one-quarter; Michigan comes next with 2,000 tons. Twenty-nine States appear in the census report as producers in this line. The census of 1870 will undoubtedly show a large and rapid increase of maple sugar products during the present decade.

It will doubtless surprise many of our readers that a majority of the Southern States figure in the census as producers of maple sugar, viz.: Alabama, Arkansas, Georgia, Kentucky, Missouri, North and South Carolina, Tennessee and Virginia—the last named producing nearly 500 tons. We have often been impressed with the idea that California is especially adapted to this culture. There are a few of these trees found here, natives of the soil, and a few gallons of syrup are reported in the census of 1860, as having been made here, but no sugar. There would seem to be but little question that the same genial climate which so materially increases the production of saccharine matter in the sugar beet, would perform the like favorable office for the sugar tree. The sugar maple is a beautiful shade tree, and might be made to grow most luxuriantly along all our water courses, and in every mountain gulch in the State. A nook or a corner here and there would grow a dozen or more of these trees, and a side hill in a glen or gorge, that is fit for nothing else, might be covered with them. Millions might thus be grown to the great benefit of all and the injury of none. A few trees will supply a family with many pounds of this most delicious sugar. Will not some one who may be acquainted with the culture and habits of this tree furnish some facts with regard to it, and inform the public through the Press, whether or not we are correct in our surmise as to its possible culture in this State.

THE EARTHQUAKE.—The shock of earthquake on Tuesday last was of moderate violence. The oscillations were from northeast to southwest, and continued six or eight seconds. The County Court adjourned for five minutes—rather hastily,—for the City Hall is not considered particularly safe on such occasions. Quite a panic occurred at one of the public schools; a rush was made for the door, and the pupils became wedged therein for a time;—some being trampled upon, and more or less injured. No buildings, so far as we have heard, were damaged.

KUSTEL'S NEW WORK on the concentration of ores is meeting with rapid sale. In addition to the regular sales at the book stores, we are daily receiving orders for the book to be sent by mail to all parts of the Pacific Coast. We shall take an early opportunity to give, in a condensed form, the numerous commendatory notices of the work which have appeared in the various papers of this city and throughout the mining regions. The book is sent from this office by mail, postpaid, to all parts of the Union on the receipt of \$7.50 in coin, or its equivalent in legal tenders.

If your eyesight is beginning to fail, try Muller's spectacles. No. 205 Montgomery street, Russ House Block.

NEEDLE-WOMEN'S COÖPERATIVE UNION.

A mass meeting of those interested in this movement was held at Union Hall on the evening of the 23d inst. Mayor McCoppin called the meeting to order. Judge Hamilton read an eloquent address, in the course of which the object of the scheme was set forth. Rev. Mr. Stebbins made an excellent speech. He was followed by Rev. Dr. Scudder and R. B. Swain, Esq.

Mr. Stebbins described the proposed plan of procedure. Three thousand shares at \$10 each, are to be issued, and will draw interest at one per cent. per month. The money thus obtained will be put into the business. Sewing-women will be furnished with material, and their work when completed will be purchased at a fair schedule price by the Association. Ten per cent. of this price will be retained, and placed to the credit of the women for stock account. In this way, the stock will all ultimately come into the hands of the working-women themselves; so that, while getting a fair price for their labor, they are also getting interest on their money.

We look upon this movement as one which will in the future constitute the chief glory of San Francisco. To be the first to move, in an earnest and systematic manner, for the permanent relief of the down-trodden and suffering class aforesaid, is something that any city in enlightened Christendom may well be proud of. The movement is, too, as politic and far-seeing as it is humane and Heaven-prompted. It is not merely that it will brighten faces now sad, and gladden hearts now desponding;—that it will change many a miserable garret and cellar into a cheerful home, which the light of hope will warm like life-giving sunshine; but its results will appear in the more distant future,—will be as lasting as the city itself. It will bring to us from the Atlantic States many a worthy young woman who will save from destruction some one of the many young men among us, who are now fast "going to the bad" solely for the lack of a good wife; and generations to come will show the difference between the offspring of happy mothers, who have time and means for self-culture and improvement, and that of ill-fed and care-worn women, in whom hope is crushed, and the only thought is for the morrow's daily bread. We bid the movement "God-speed!"

THE STATE GEOLOGICAL SURVEY.—The Senate has finally followed the example of the House, and passed the Appropriation Bill, without specifying any sum for the continuance of the Geological Survey. This is equivalent to the putting a stop to the work. This action will do the State no good abroad. It is hardly worthy of a Commonwealth like this, after putting its hand to this great and admittedly important work, to stop short of its completion. The sum of \$15,400 was appropriated for liquidating the existing deficiencies in the office—nothing more. But whatever may be thought of this, there can be no excuse for thus dropping it, without making provision for a proper closing up of matters connected with it,—for the meeting of the obligations already incurred for still uncompleted printing and engraving of volumes and maps,—and for the storing and preservation of the collections, etc., already on hand. It is not easy to comprehend the action of the Legislature in this matter, unless upon the supposition that it is in contemplation to pass a special bill for meeting their obligations. We hope that this will be done; and, we may add, we still hope that if it is done, better counsels will prevail, and that the Survey will, after all, be continued. If there is a State in the Union where such a Survey is especially desirable, it is California.

NOTEWORTHY.—Freight cars, loaded in Boston, have gone through to Cheyenne, the present western terminal point on the Pacific Railroad, a distance of over 2,000 miles, without breaking bulk by the way.

PURE CALIFORNIA WINES.—The civilized world is gradually waking up to the realization of the fact, that the soil and climate of our coast are most admirably adapted to the culture of the grape and the manufacture of wine. Mr. B. D. Wilson, the pioneer wine grower of the Pacific, and proprietor of the large and celebrated Lake Vineyard Ranch, Los Angeles County, has established a depot at No. 425 Jackson street, in this city, for the sale of his already well-known brands of Port, Sherry, Angelica, Mound Vineyard, Lake Vineyard white wines, and grape brandy, together with the best assortment of the choicest varieties of pure wines from other parts of the State. As the business here is conducted by the Messrs. J. De Barth Shorb and Carlton Curtis, gentlemen of intelligence and the strictest integrity,—the former a son-in-law of the proprietor,—the public have the fullest assurance that no impure or adulterated article will be offered; but on the contrary, they will have the pleasure of examining only the best and purest wines from Mr. Wilson's vintage, or well-selected brands from other portions of the coast. In addition to this, we understand that Mr. Wilson, before embarking in the business of wine making, had already amassed a considerable fortune which afforded him facilities for its successful prosecution, enjoyed by few. This enabled him to secure a choice locality with favorable conditions as to soil and climate, pipes, cellars, commodious receptacles and all necessary appendages, and to command for his enterprise the most skilled labor and the best intellect of Europe and America. He has consequently always taken, we believe, premiums at our State Fairs, when properly represented. He has successfully produced nearly all classes from the Hock of the Rhine to the heavier wines of Spain,—his white wine being pronounced by connoisseurs as the host on the coast. Among this latter class is his far-famed Mound Vineyard, produced only from one vineyard, from which it derives its name. It is exceedingly mild and palatable, and possesses, without doubt, a more delicious bouquet than any other California wine. His Angelica and Port wines are so well known and appreciated, that it would be useless to refer to them here. The following beautiful, (but necessarily curtailed) description of the ranch and its surroundings, is from the correspondence of the *Evening Bulletin*, of the 28th ult:

A delightful drive from Los Angeles of some eight miles, and the tourist alights at Lake Vineyard, owned by Mr. B. D. Wilson, and pronounced the most lovely spot in California. In all there is some 14,000 acres of land, 1,000 of which are devoted to vineyard and orchard. Mr. Wilson is one of the most extensive manufacturers of wine and brandy upon the Pacific Coast. He has 350,000 grape vines, 2,500 orange, 500 lemon, 100 lime, 400 olive, 1,000 walnut trees, and nearly 1,000 trees of the other varieties of fruits. Lake Vineyard has been visited by ladies and gentlemen from all sections of the globe, all of whom are lavish in their tender of praise. It is indeed an enchanting spot, and combines more of beauty and attractiveness in its locality and picturesque sublimity, than any place I have ever visited. Standing at the door of Mr. Wilson's residence, the eye wanders over a panorama of beauty; little rivulets of sparkling, gurgling water discourse exquisite music; while the air is fragrant with millions of flowers and musical with unnumbered voices of feathered songsters. I realize in all its grandeur and gorgeousness the vision of the fabled Rossas, presenting all the blooming freshness and beauty of flowers that adorn the bosom of a young bride.

PASSED BOTH HOUSES.—The telegraph of last evening announced that the Mechanics' Lien Law, had passed both Houses of the Legislature. Of course it will receive the signature of the Governor and become a law.

It is said that the famous Napoleon gun, about which so much was said last fall, is nothing more nor less than the Gatling gun—an American invention.

BET ROOT SUGAR.—The *New York Times* is authority for saying that fully one-third of the total amount of sugar consumed in the world is manufactured from beets. At the present time, immense quantities of raw beet sugars are imported into England for their refineries; and it is said that the foreign beet sugar is competing very successfully with the cane sugar produced in the English colonies. The moist atmosphere of England, and lack of sunshine, precludes the successful cultivation of the beet there.

The above facts are highly encouraging to Californians, as showing that the culture and manufacture of beet sugar is an accomplished fact in Europe, where the climate is far less suited to it than here. The sugar beet finds its most congenial home in California. Under the influence of our dry atmosphere and continued sunshine, the beet secretes fully two per cent. more saccharine matter than does the same plant in Europe. We hope to see the time soon arrive when every pound of the 12,000 tons of raw sugar now annually imported for our refineries shall be produced on California soil by California producers.

THE STEAM MAN.—Some of our contemporaries have expressed doubts as to the actual construction of the machine, which has been described as the "Steam Man." In order to remove such doubts, the proprietors have caused photographs to be taken, one of which was received per last steamer by A. S. Hallidie, President of the Mechanic's Institute, of this city. The same has been placed in the hands of a photographer of this city, by whom copies will be taken and offered for sale the coming week.

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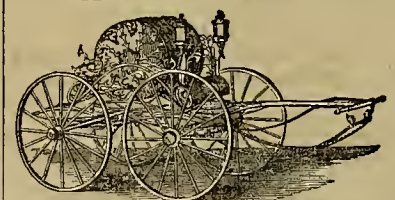
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for Chewing, Smoking and Snuff-taking. Fifty cents per
package, sent on receipt of money. Address orders to W. B.
LAKE, 32 Merchants' Exchange, San Francisco. 12v16-3m

EUROPEAN RAILROAD ACCOMMODATIONS.
Hon. Louis W. Hall, now traveling in Eu-
rope, writes thus from Nice, Jan. 8th: "The
general railroad accommodations in France
and England are not near so good as in the
United States, but in speed and safety, their
best railroads excel ours, with a very few
exceptions. The precautions exacted and
enforced here for the safety of travelers we
do not have in the United States, and I pre-
sume the entire freedom of the people would
not submit to, even though enforced in the
shape of rules to protect limb and life. I
know of no other points of excellence.
Their cars are not as good as ours, nor are
they provided with any of the modern im-
provements. As an illustration, we were
all night in the cars on the ride to Marseilles.
When we left Paris there was snow on the
ground, the weather was exceedingly cold
and freezing hard, and yet there was neither
stoves in the cars, nor heat of any kind,
except that several times on the long ride
of sixteen hours, copper boxes of hot water
were thrust into the coupe to keep the feet
warm. These got cold in about an hour,
and are then in the way and a nuisance, till
the next ones are put in, which is not done
very frequently."

THE DARWINIAN THEORY.—Rev. F. A.
Ewer, of New York, recently delivered a
lecture upon this subject, before the General
Society of Mechanics and Tradesmen. We
quote briefly from the lecture as reported
in the Tribune: Divines may object that
Darwin's theory is atheistic because it de-
nies the intervention of a Creator in the ex-
istence of all these varieties of life, but
does it? Does it not suggest a higher idea
of a Creator who is eternally working
through that operation of his laws, in pro-
ducing constantly new forms of life, than if
we regard him as one who, having at one
period long ago laid, expended all his
power in one spasmodic act of creation, and
then retired to rest, and contemplate through
all future time the working of the machine
which he has set in motion?

COAL OIL THEORIES ALL "SHAKY."—
The production of coal oil is increasing
even in this cold weather, and is now over
eleven thousand barrels daily. The pro-
duction, kept up, would give over four mil-
lions of barrels yearly. Now that oil is so
cheap, up comes a flowing well, pouring
out its three hundred and fifty barrels, over
by the once-to-have-been famous Reno,
marking out a new course or belt for oil veins;
and another, twelve miles from it, near the
Shamblour district, has been for three
weeks flowing quite as much, destroying all
the later theories about flowing wells, for
these wells are cased, and it had been dem-
onstrated beyond dispute that wells cased
could not flow. So it goes, and the latest
theory is always overthrown by the first
frost.—Pittsburg Chronicle, Jan. 30th.

WALKING VEHICLE.—At the meeting of
the Farmers' Club of the American Insti-
tute, a "walking vehicle," patented Feb. 4,
1868, by R. C. Vernol, of New York City,
was exhibited in model, which was operated
by clock work, although steam is intended
to operate full-sized machines. The rear
portion of the machine is supported on four
legs, two on each side, which are connected
with eccentric shafts in such a manner as
to receive an up-and-down as well as oscil-
lating motion, and when put in operation
perform the same function as the legs of an
animal. A hand-wheel placed in front
guides the forward wheel and directs the
course of the machine. It is intended as a
substitute for the traction engine, and will
ascend quite steep grades.

AN ENGLISH WRITER.—An English law-
yer has forsaken the gown and bar to in-
vent and perfect a flying machine. He pro-
poses "to convey passengers through the
air by a steam bird, or a flying steam en-
gine fitted with wings flapped by the action
of steam." A patent has been taken out
for this contrivance, but the machine is not
yet ready to be put in operation.

ALUMINUM ALLOY.—A new alloy of alu-
minum has been made known by M. M.
Paul, Morin, and Ruolz. It consists of
one-third silver and two-thirds aluminum.
At first it was found difficult to render the
alloy homogeneous, but this difficulty ap-
pears to have been overcome, and the alloy
is now being supplied at the rate of 38s.
per pound. It is said to be harder than sil-
ver and more easily engraved.

THE RAINFALL.—The Nevada Transcript
says that the rainfall of the present season
at Nevada, has been 100.06 inches; within
nine inches of the heaviest ever known in a
single winter.

NEW METHOD OF PRESERVING MEAT.—Professor Gamgee, President of the Albert Veterinary College of London, author of several works upon the cattle plague, and a recognized authority in such matters, has discovered a new process for preserving meats, which he has patented in Europe and America. The process is simple and quite inexpensive. The animal, when practicable, is caused to inhale carbonic (oxide) gas. Before it is quite insensible it is bled in the usual way. When dressed the carcass is suspended in an air-tight receiver, the air exhausted, and the receiver filled with carbonic oxide gas; a small quantity of sulphurous acid gas is also added. After remaining here for from twenty-four to forty-eight hours, the meat may be removed and hung in a dry atmosphere; it will keep for one, two, or three months, or longer, with no perceptible change in taste or appearance. The tests of the method thus far applied have been attended with success. Beef killed in London, in March last, was sent to New York in June, and as late as the middle of July, was shown to a prominent butcher in Fulton market, who did not discover that it was other than ordinary beef, and expressed the opinion that it had probably been killed about two days. Mutton killed in London last July, and sent to this city soon after, is now perfectly fresh, and one piece of beef kept for ten days in a can surrounded by water at a temperature of 90 to 100 degrees, came out perfectly fresh. The process, in the opinion of eminent chemists, does not injure the meat in the least; an advantage very difficult of attainment, even in the case of transportation of live stock, which is liable to the bad effects of confinement and the length of the journey.—*Am. Journal of Mining.*

MODERN WARFARE.—Steam, railroads, the telegraph, iron walls, and lastly iron water pipes, have been brought into requisition to facilitate modern war engineering. Four locomotives are now at work in Abyssinia upon railways connected with the English expeditionary force in that country. One of the latest orders from the British commander was for eighteen miles of water pipe! The first shipload of these pipes sailed from Liverpool in fourteen days from the date on which the telegram calling for the same was received at the war office. The laying of water pipes in an enemy's country by a besieging army, is quite a new phase in military tactics. The telegraph and railroad have now been for some years indispensable adjuncts to an advancing army, and in future years it is more than probable that water pipes will be found equally indispensable. What next?

Copperas! Copperas!

75,000 LBS. IMPORTED COPPERAS-SULPHATE of Iron, for sale in lots to suit, by
BENJ. DRAKE, 108 California street,
S. W. corner Davis, up stairs.

The American Spring Bed.

THIS BED, NOW SO POPULAR IN THE EASTERN and Western States, was patented August, 1886. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines elegance with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 29 Post street, San Francisco. 8v16-3m



THE UNDERSEIGNED, HAVING BEEN APPOINTED Sole Agent for the Pacific Coast for the sale of ROPER'S BREECH-LOADING SHOT GUN, which discharges four shots in two seconds, circulars will be furnished by applying to or addressing

HENRY EITEL,
111 Second street,
Or Lock Box 1172 P. O., San Francisco. 18v16 2m6m

CARD.

THE UNDERSEIGNED, SINCE DISPOSING OF HIS Gallery on Montgomery street, has sold out been in the street without being asked where the best photographs were taken. Now, for the benefit of his friends and the public generally, he would recommend them to go to the **COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY**, No. 521 Kearny street, now owned and occupied by Messrs. HALSEY & SCRIPTURE. Both of these gentlemen are professional photographic artists—one of them having been in the business more than twenty years—and cannot be surpassed by any one in the State.

Persons wishing photographs taken will do well to give them a call. The above named gallery is one of the finest and most convenient in San Francisco, it being situated on the second floor, and its proprietors are the most accommodating and gentlemanly men in the business.
JAMES WISE, Portrait Painter.
N. B.—Prices as low as at any other Gallery in the city.
Solar Printing for the Trade.
Also Stereoscopic Views of California Scenery, at wholesale and retail, at the Cosmopolitan Art and Photographic Gallery, No. 521 Kearny street.
HALSEY & SCRIPTURE,
7v16-3m Proprietors.



Office Pacific Business College and Telegraphic Institute.

Mechanics' Institute Building, Post Street. [Exterior View.]
A. de LEO de LAGUNA. [10v15-8m] JAMES VINSONHALER.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen: Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.
Hamburg, by Hamburg mail—2 cents each.
Prussia, Austria and German States, by Bremen or Hamburg mail—3 cents each.
Lunenburg, by Bremen mail—3 cents each.
Lunenburg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.
Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.
Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—4 cents each.
Italy, by Bremen or Hamburg—5 cents each.
Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mails, via Trieste—3 cents each, and 2 cents per 1½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.
Hamburg, by Hamburg mail—1 cent per ounce.
Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.
Lunenburg, by Bremen mail—1½ cent per ounce.
Lunenburg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.
Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.
Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per 1½ ounce.
Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail, by way of Trieste—6½ cents per ounce, and 2 cents per 1½ ounce.
These charges are in each case to full destination, combining rates between the United States and Bremen or Hamburg, and the rate beyond Bremen and Hamburg to points of delivery.

Blanks, Blank Mining Books,

Constitution and By-Laws

—FOR—

Mining and Prospecting Companies

Elegantly printed, with care and dispatch, at the office of the

Mining and Scientific Press.

Orders from the interior faithfully attended to.

HO TEAMSTERS!

CONTINUE TO

USE HUCKS & LAMBERT'S

CELEBRATED

H & L Axle Grease,

To which you have given so decided a preference for the last

FOURTEEN YEARS,

It is the only reliable article

IN THE MARKET

Every care will continue to be used to sustain the high reputation the H & L Axle Grease, has so long and justly attained.

Be sure and ask for the H & L brand, and see that the

TRADE MARK H & L

IS ON THE COVER OF THE PACKAGE

NONE OTHER IS GENUINE.

FOR SALE IN EVERY STATE IN THE UNION.

6v16c6w1f

Practical Mining and Milling Processes Described.

BEAN'S

HISTORY AND DIRECTORY

—OF—

NEVADA COUNTY, CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Chlorine and other processes; Geological Formation of the most noted mines in California, etc., etc.

COMPILED BY EDWIN F. BEAN.

Editor and Publisher of the Nevada Daily Oazette.

Price, \$5.—For sale at the office of the Mining and Scientific Press, San Francisco. 13v15f

SPRING FASHIONS

FOR 1868!

MEUSSDORFFER'S

NEW STYLE OF

DRESS HATS

For Spring and Summer, will be introduced

On Saturday, February 29th,

635 and 637 Commercial street.

8v16f

Legitimate Photographs

OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photographs, and a special premium for the best Cabinet Portraits, to SILAS SELLECK, 415 Montgomery street. Prices reduced to conform to Association rules. Patent secured. 2v16-6m

MOSHEIMER'S

Pioneer Mining School.

Office, 328 Montgomery Street,

SAN FRANCISCO.

MOSHEIMER'S

NEW ROASTING FURNACE.

Patent applied for.

This Furnace has proven the most successful of any ever built on this Coast. A great number are in use now, and many in course of construction. Their superiority over all other furnaces, is as follows:

- 1.—The cost of building is only \$300 for a one ton Furnace.
- 2.—They require less than half a cord of wood per ton of ore.
- 3.—The ore roasted to a spongy condition; while in a common Reverberatory it cakes into globules.
- 4.—It is a saving of 50 per cent. of labor over any Furnace in use.

A full size working Furnace can be seen at my Metallurgical Works in this city, by applying at my office.

JOS. MOSHEIMER,

328 Montgomery street, San Francisco.

A Sulphuret Mine Wanted.

Any party having for sale a Mine, with Gold-bearing Sulphurets, of not less than 15 per cent., and which pay at least \$30 per ton, can find a purchaser by addressing, by writing, particulars to

JOS. MOSHEIMER,
San Francisco.

THE GOLDEN ERA.

Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

THE GOLDEN ERA

Is the most universally popular of all the Weekly Journals. It presents forty-eight columns, containing the greatest possible variety of Valuable and Entertaining, Original and Selected matter. It is a welcome guest in Cottage and Cabin; the favorite at the fireside in city and country; the most useful, agreeable and altogether desirable publication for California readers and their kindred and friends in the Atlantic States, Europe and elsewhere. Every household in the mountains and valleys, the cities, towns and mining camps of California, and throughout the Pacific States and Territories, should receive and welcome THE GOLDEN ERA as a regular weekly visitor. Inspired with the genius of the age, it is progressive, and aims not so much at distinction as a newspaper, as at honorable success in its capacity of a great Moralizing and Improving Influence. Exercising a positive power for good, and wielding a permanent influence, many able and eminent writers choose its columns as a means of communicating with the public. No effort will be spared to make it a thoroughly California newspaper, and worthy of the support of all classes of our citizens.

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Send money to our office in registered letter, or by Express, Address,

BROOKS & CAPPE,

San Francisco.

Mining Secretary.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST five years as Secretary of various mining companies, feels fully competent to serve in that capacity. Any parties wishing to secure the services of a Secretary can be accommodated on reasonable terms. Information given, and all necessary papers correctly made out. Having had a long experience in the purchasing of goods and machinery for miners, parties in the mines will find it to their advantage, where purchasing agents are employed, to send their orders to the undersigned.

J. M. BUFFINGTON,
Room 37 New Merchants' Exchange, California street,
San Francisco. 1v15-1f

\$100 A MONTH SALARY WILL BE PAID FOR Agents, male or female, in a new, pleasant, permanent business. Full particulars sent by return mail, of sample retelling at \$4.00 for \$50.00. A. D. BOWMAN & CO., No. 4 Broad street, New York. [Clip out and return this notice.] 10v16-3m

ESTABLISHED [Mar, 1860.]

VOLUME SIXTEEN

- OF THE -

Mining and Scientific Press,
COMMENCING JANUARY, 1868.

DEWEY & CO., Publishers.

Issued every SATURDAY, at our Book and Job Printing Office, 505 Clay street, corner of Sansone, San Francisco.

Terms in Advance:—One year, \$5; Six months, \$3; Single copies, 15 cents; Monthly Series, \$5.50 per year, or 65 cents per number. Back Volumes from January, 1864, \$3 per volume; bound, \$5 per volume.

The Mining and Scientific Press is now thoroughly established, and enjoys one of the largest and most permanent subscription lists of any weekly journal on this coast. The individual character and reputation of its constant patrons throughout the entire coast is one of the best recommendations of its merits and value as a medium of intelligent progress and prosperity.

DEWEY & CO., Proprietors,
Mining and Scientific Press Patent Agency, Newspaper, Book and Job Printing Office, 505 Clay street, San Francisco.

MINING AND SCIENTIFIC PRESS.

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DEWEY & CO., Proprietors,
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[Jan. 1, 1868.]

SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;
With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

By WM. BARSTOW, M. D.

Published by A. Roman & Co., San Francisco.

For sale at this Office.—Price, One Dollar.

With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 21v15fr



THE FLORENCE

RECEIVED THE HIGHEST PREMIUMS

At all the most important Fairs held in the United States in the year 1867. Gold Medals at the American Institute Fair, New York; Mechanics' Association Fair, Lowell; Maryland Institute Fair, Baltimore. Highest Premium at the New York State Fair, Buffalo, and at the Great New England Fair, Providence. At the Fairs held on the Pacific Coast, this machine has taken

Every First Premium

Awarded on Family Sewing Machines in the LAST FIVE YEARS. It there is a Florence Machine within one thousand miles of San Francisco, that is not giving entire satisfaction, if I am informed of it, it will be attended to without express charge or expense of any kind to the owner.

SAMUEL HILL, Agent.

11v16-4m 111 Montgomery street, San Francisco.

To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE in Mining and doing business connected with Mining Operations, offers his services to parties wishing to purchase mines, to examine and report upon them, to buy, report upon the titles of any mine offered for sale, and to transact any business connected with mining operations in this District. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address,

Lone Pine, Inyo Co., Cal. JAMES DELAVAN. 4v16fr

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RODGERS, MEYER & CO.,
COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

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Sole Agents for Barstow's Metallic Burial Cases and Caskets. 25v14fr

LYMAN, MERITT & CO.,
Commission Merchants
And Dealers in Wool and Hides,

Office, 37 Merchants' Exchange, (up stairs) San Francisco.
Cash advances made on Wool and other Produce.
N. B.—All kinds of Merchandise purchased upon orders. 6v16-3m

W. H. DALTON. L. BLUNT.

DALTON & BLUNT,
Produce and Commission Merchants,

Dealers in all kinds of Country Produce,
406 Davis street, between Washington and Jackson, San Francisco. 8v16-3m

L. BREIDENSTEIN,
Manufacturer and Dealer in
JEWELRY BOXES,
CONFECTIONERY BOXES,

And all kinds of Fancy Articles; also BOOK-BINDING.
No. 615 Montgomery street, between Washington and Jackson, San Francisco. 12v16-3m

REMOVAL.

The well known establishment of
LUCY & HYMES,
MANUFACTURERS OF
Genuine Pale and Chemical
OLIVE SOAPS.

Has been removed from Beale street, between Mission and Howard, to BRANNAN STREET, between Eighth and Ninth, and greatly enlarged.
The capacity of this establishment is now the largest on the Pacific Coast. It is now in full operation, and prepared to supply the demand of the trade.

Office—319 California St., San Francisco. 1v15qr

TRUEDELL, DEWEY & CO.
BOOK AND JOB PRINTERS,

Mining and Scientific Press Office,
NO. 505 CLAY STREET,

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CARDS,

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PRINTING OF ALL KINDS FOR BUSINESS MEN

BRIEFS,

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LEGAL BLANKS,

Neatly, Correctly and Promptly Printed.

DEWEY & CO.
PATENT AGENTS,
ENGRAVERS AND PUBLISHERS
Mining & Scientific Press.
CIRCULARS FREE.
SAN FRANCISCO.

National Mineral Land Law, Instructions.
Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

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WM. BARTLING. HENRY KIMBALL.
BARTLING & KIMBALL,
BOOK BINDERS,
Paper Rulers and Blank Book Manufacturers.
505 Clay street, (southwest cor. Sansone),
16v12-3m SAN FRANCISCO.

JOHN DANIEL,
(SUCCESSOR TO O. GOAL)
MARBLE WORKS,
No. 421 Pine st. bet. Montgomery and Kearny, San Francisco

Mantels, Monuments, Tombs, Plasterers' Slabs
Etc., on hand and Manufactured to order.
Goods shipped to all parts of the State. Orders respectfully solicited. 5v8-3m

Palmer's Patent
ARTIFICIAL LEG,
Manufactured in Philadelphia, Penn.
JARVIS JEWETT, AGENT.
218 Montgomery Street, San Francisco. 10v8-1m

J. M. STOCKMAN,
Manufacturer of
PATTERNS AND MODELS,
(Over W. T. Oarratt's Brass Foundry.)
S. E. Corner of Mission and Fremont sts.,
6v14fr SAN FRANCISCO

THEODORE KALLENBERG,
Machinist, Maker of Models for Inventors,
Scales, Weights, Dies, Stamps, Drawing and Philosophical Instruments, etc.
No. 10 Stevenson street, near First, San Francisco. 3v15fr

J. F. PAGES,
SEAL ENGRAVER,
AND LETTER CUTTER,
Stamps, Seals, Steel Punches and Dies, Monograms, Notary Seals, etc., 522 Montgomery street, San Francisco. 6v16

RADICAL CURE
—OF—
RUPTURE!

Treatment of all Deformities of the Body, by DR. A. FOLLEAU's process. 624 Washington street, up stairs, Washington Bait Building, between Montgomery and Kearny streets.

DR. A. FOLLEAU
Has his studies and manufactures in the same building. Every kind of Apparatus, Trusses, Orthopedic Instruments, Artificial Limbs, etc., are manufactured and applied by himself.

He has no connection with any Agency. 21v14-11p1fr

Pacific Mail Steamship Co's
STEAMSHIPS FOR

NEW YORK, JAPAN AND CHINA.

LEAVE WHARF, CORNER OF FIRST AND

BRANNAN STREETS, AT 11 O'CLOCK A. M. OF THE

FOLLOWING DATES, FOR PANAMA, connecting via Panama Railroad, with one of the Company's splendid steamers from

ASPINWALL, for NEW YORK.

On the 10th, 18th and 30th of each month that has

31 days.

When the 10th, 18th and 30th fall on Sunday, they will

leave on Saturday preceding; when the 18th falls on Sunday, they will leave on Monday following.

Steamer leaving San Francisco on the 10th touches at

Manzanillo. All touch at Acapulco.

Departures of 18th or 19th connect with French Transatlantic Co.'s steamer for St. Nazaire, and English steamer for South America.

Departure of 10th is expected to connect with English steamer for Southampton and South America, and Australia, and P. R. Co.'s steamer for Central America.

Through tickets can be obtained.

The following Steamships will be dispatched on dates as given below:

March 30th—GOLDEN CITY.....Capt. W. F. Lapidge,

Connecting with ARIZONA, Capt. Maury.

Cabin passengers berthed through. Baggage checked through—100 pounds allowed each adult.

An experienced Surgeon on board. Medicine and attendance free.

These steamers will positively sail at 11 o'clock. Passengers are requested to have their baggage on board before 10 o'clock.

Through Tickets for Liverpool by the Cunard, Inman and National Steamship Lines, can be obtained at the office of the P. M. S. S. Co., San Francisco, where may also be obtained orders for passage from Liverpool or Southampton to San Francisco, either via New York or St. Thomas—If desired an amount of \$10 to \$20 will be advanced with the above orders. Holders of orders will be required to identify themselves to the Agents in England.

The Steamship CHINA, Capt. Geo. F. Lane, will be dispatched April 14th, at 12 o'clock, noon, from wharf, corner of First and Brannan streets, for YOKOHAMA and HONGKONG, connecting at Yokohama with the steamer COSTA RICA for SHANGHAI.

For Merchandise and Freight for New York and way ports, apply to Messrs. WELLS, FARGO & CO.

For passage and all other information, apply at the Pacific Mail Steamship Co's office, corner of Sacramento and Leidesdorff streets.

OLIVER ELDRIDGE, Agent.

"Best Best" Iron.

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Assorted Sizes.

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Persons wishing Mechanical Drawings can obtain the services of competent draughtsmen, by applying to this office

Professional Cards.

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At their Office and Rooms, 652 Market st., cor. of Kearny,
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A. R. WALKER,
DENTIST,
Office and Residence, 254 Fourth street, San Francisco.
10v16-3m

J. W. WINTER,
DENTIST.

Office, 647 Clay street.....San Francisco.
First-class gold fillings for \$3, as good as any dentist can produce in the city. Dr. Winter has practiced Dentistry twenty years—fifteen in this State. For a full upper set of gum teeth, on vulcanite base, from \$20 to \$35. Teeth extracted without pain by local application. 18v14-fr

DR. DANIEL BREED,
Solicitor of Patents and Consulting Chemist,
Office, 371 F street, opp. Patent Office, Washington, D. C.
Late of the U. S. Patent Office; formerly of the German Laboratories of Liebig and Lowig; Translator of the Chemistry of Liebig and Lowig.

Dr. BREED will promptly attend to any business, and give special attention to chemical, rejected, and other difficult and important cases. Address Dr. DANIEL BREED, Washington, D. C. 22v15-6m

SURE CURE.

I PROMISE TO CURE RHEUMATISM, NEURALGIA, Gout in the Feet or Ankles, Chills and Fevers, Dyspepsia, Piles, Mange, Bone Fester, and all kinds of Sores, in men or animals, and no matter of how long standing, whether inherited or otherwise. Also, Heart Disease, Sore Eyes, Sore Throat, Diphtheria, Scrofula and Salt Rheum. Secret Diseases of all kinds cured. DR. JAMES BROWN, No. 340 Broadway, between Sansone and Montgomery streets, San Francisco.

Persons living at a distance can receive Remedies per mail, on reception of description of disease. 6v15-3m

FREDERICK MANSELL.

Mechanical & Architectural Draughtsman,
No. 422 California street, corner of Leidesdorff.

Drawings of Models made for parties applying for patents at Washington or London. mar23-fr

JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street,
SAN FRANCISCO.
2v15-1qy

J. S. PHILLIPS, C. & M. E.,
MINING ENGINEER, Etc.,

Wadsworth House.....San Francisco.
Examiner of Mineral Ledges, Mines and Mining Machinery; Drawings given, and Manufacture supervised, for Pumping, Hoisting, Crushing, Separating and Reducing Appliances, by Steam, Water, Fire, and Chemicals, throughout manipulations.
Assayer of Mineral Compounds. For simple assay, \$5; Qualitative for all, \$10; Correct total Quantitative, \$20. Advice, as to the best method, and instructions for working Retractory Ores. Send one-half ounce of unbroken rock.
Practical Lessons in Assaying, by Blowpipe, Spectroscopy, Crucible or Chemistry. Ledges of intrinsic value for gold, silver, copper, and lead, disposed of for development by capitalists. 8v16-3m

INSTRUCTION

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Parties wishing to learn the

Working of Sulphurets

BY THE

CHLORINATION PROCESS,

Can have an opportunity of doing so by applying to the undersigned, who are prepared to give practical instruction at reasonable rates. Apply to

JOHN AGRELL,

3v15-3m Jackson, Amador Co., Cal.

College of California.

Department of Chemistry,

UNDER

PROF. W. B. RISING.

The Laboratory has recently been fitted up so that each student will be supplied with a set of Chemical Reagents at his own desk.

The Course of Instruction will include a thorough drill in Qualitative Analysis, and advanced students will be furnished every convenience for Quantitative Analysis.

Attention will be given to the detection and separation of poisons.

Also, instruction in the Assay of Gold, Silver, Copper, Lead, Mercury, and other Ores.

Students from abroad, prepared to proceed with the class in the studies of this department, may be admitted on application to the Professor in charge. 5v16fr

Postage.—The postage on the MINING AND SCIENTIFIC PRESS to any portion of the United States is twenty cents per annum, or five cents per quarter, payable in advance at the Post Office delivering the paper. Postage free in the city and county. Foreign postage (with few exceptions) two cents per copy, prepaid. To Bremen and the German States (marked via Bremen and Hamburg line), three cents per copy, prepaid. Single copies to any address in the United States, two cents.

Order Bussey's Combination Burglar and Powder-Proof Keyless Lock!

REASONS WHY.

- 1st. It is the best Combination Lock known.
- 2d. It is impossible to pick it.
- 3d. It can be subjected to over half a million changes, and when run by a burglar, he is no nearer entrance than when he began.
- 4th. It has no key to lose.
- 5th. The more it is used the better it is liked.
- 6th. It has no signs, letters or figures, on its face.
- 7th. It is the simplest to understand.
- 8th. It is impossible to open it without knowing the set.
- 9th. It is least possible to get out of repair, as any one will be convinced on examination.
- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair.

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA,
San Francisco, May 24, 1866.

Recently, two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way meet our fullest approval.

They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks.

We deem the lock entirely burglar-proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find no difficulty in either opening or closing it, nor in changing its combinations, which may be made almost innumerable.

As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, to bring it to possess all the advantages which are claimed for it.

WM. H. TILLINGHAST, Sub-Manager.

We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several vaults and safes, to entire satisfaction to parties interested.

KITREIDGE & LEAVITT,
Pioneer Iron Works, cor. Fremont and Market sts.

SAN FRANCISCO, May 6, 1867.

I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safes and Vaults in every other respect as good as any other improved combination lock ever constructed with.

JOHN R. SIMES,
Vault Manufacturer, Oregon Street.

JACKSON, April 27, 1867.

I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:

1st—Because it is impossible for either burglar or export to pick it.

2d—The lock being constructed without a key-hole, it cannot be blown to pieces by powder.

3d—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.

R. COSNER.

JACKSON, April 27, 1867.

The undersigned, Treasurer of Amador County, do hereby certify, that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's safe. I have met with no success in gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe every few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.

OTTO WALTHER.

Attested by J. C. SHIPMAN, County Clerk.

CALIFORNIA LOCK ABROAD.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Burglar and Powder-Proof Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the Press several months ago. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable claims asserted in favor of the Lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.

(Mining and Scientific Press, Sept. 23, 1866.)

They are the only SAFE lock ever invented. Every State and County treasury vault, and every bank and business place should have one.—[Amador Ledger.]

This is a lock in which a series of rotating annular tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair.—[Sacramento Union.]

We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar Proof Lock to be the most reliable lock constructed.

F. MARKT & C. FLICKSHERL,
No. 18 Post street.

REFERENCES:

R. COSNER, Sheriff.

O. WALTHER, Treasurer.

W. JENNINGS.

C. H. INGALLS, Supervisors.

L. MC LAINE.

Any good blacksmith can put this lock on safe doors. Boxes or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be.—[See page 39 in Pacific Coast Directory.]

A deaf or blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.
19v14my1&18 Janj

Mineral Land Law Blanks FOR SALE.

We are prepared to furnish any of the following blanks used in securing patents for lands under the National Mineral Land Act of 1866:

- I. Applicants' Declaratory Statement.
 - II. Diagram, Description of Diagram and Boundaries, and Notice.
 - III. Register's Order for Publication—with Notice.
 - IV. Deposition that Notice has been Posted.
 - V. Application for Survey Etc.
- Prices.—Single blanks, 10 cents; 75 cts per dozen; \$4 per hundred—postage paid.
- Pamphlet containing the Law and the Instructions of the General Land Commissioner, post paid, 25 cts. Address DEWEY & CO., Mining and Scientific Press, San Francisco.

New Mining Advertisements.

Black Ledge Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. mar28

Chilpaneca Mining Company—District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of March, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. m28

Fogus Mill and Mining Company—Location of Works: Amador County, Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the nineteenth day of February, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
G D Keeney	5	40	\$40 00
O D Keeney	16	20	20 00

And in accordance with law, and an order of the Board of Trustees, made on the nineteenth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 321 Front street, San Francisco, Cal., on Thursday, the ninth (9th) day of April, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN J. SCOTCHLER, Secretary.
Office, No. 321 Front street, San Francisco. mar29

Great Central Mining Company—Location of Works: Yuma County, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the nineteenth day of February, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Burke, M. J.	70	30	\$30 00
Brokaw, Jas (deceased)	169	20	20 00
Brokaw, Jas	188	75	75 00
Campbell, J. A.	295	20	20 00
Cleveland, W. H.	313	25	25 00
Kellogg, Jas.	175	50	50 00
Wiggin, Chas L.	25	25	25 00
Wiggin, Chas L.	2	25	25 00

And in accordance with law, and an order of the Board of Trustees, made on the nineteenth day of February, 1868, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Olney & Co., auctioneers, 426 Montgomery street, San Francisco, Cal., on the fourteenth (14th) day of April, 1868, at the hour of 4 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street. mar28

Honest Miner Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, No. 223 Clay street, San Francisco. mar28

Jo. Lane Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. mar28

Mining Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of this class of advertising.

Kearnsage Mining Company, Kearnsage District, Inyo County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twentieth day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bills, D. L.	18	200	\$200 00
Hauvelt, W. H.	22	60	60 00
Olney & Co.	14	75	75 00
Leet, W. N.	17	215	215 00
Slead, Geo.	101	200	200 00
Sanford, J. H.	16	500	500 00
Unknown	1833	1533	1533 00

And in accordance with law, and an order of the Board of Trustees, made on the twentieth day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Doro & Co., No. 327 Montgomery street, San Francisco, on Thursday, the sixteenth day of April, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. mar28

Lyon Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-second day of February, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J M Cassius	37	10	\$20 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-second day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction rooms of Olney & Co., No. 418 Montgomery street, San Francisco, Cal., on Monday, the thirteenth (13th) day of April, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar28

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1868, an assessment of two dollars and fifty cent per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 312 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. GOLOMAN, Secretary.
Office, No. 312 Front street, San Francisco, Cal. mar28

Mining Notices—Continued.

Chalk Mountain Blue Gravel Company.—Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar21

Folsom Street and Fort Point Railroad and Tunnel Company, San Francisco, California.

Notice is hereby given, that at a meeting of the Board of Directors of said Company, held on the tenth day of March, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Cash T. Fay, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the eleventh day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-seventh day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. mar14

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of February, 1868, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. feb22

North American Wood Preserving Company. Location of Works: San Francisco, California.

Notice is hereby given, that at a meeting of the Board of Directors of said Company, held on the twenty-ninth day of February, 1868, an assessment of two dollars and fifty cents (\$2.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 37 New Merchants' Exchange, California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the ninth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

WM. B. LAKE, Secretary.
Office, 32 Merchants' Exchange. mar7

Oxford Beta Tunnel and Mining Company, Esmeralda District and County, State of Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the tenth day of February, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C O Heath	147	10	\$5 00
C O Heath	148	10	5 00
C O Heath	149	10	5 00
C O Heath	152	10	5 00
C O Heath	156	10	5 00
C O Heath	158	10	5 00
A Hinds	212	60	25 00

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Maurice Doro & Co., at their salesrooms, No. 327 Montgomery street, San Francisco, on Monday, the sixth (6th) day of April, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

GEO. H. PECK, Secretary.
Office, 212 Clay street, San Francisco. mar21

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the sixth (6th) day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco, California. mar21

Sucreo Gold and Silver Mining Company.—Location of Works: Storey County, State of Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the tenth day of February, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Aldrich, Lewis	143	79 1/2	\$39 40
Aldrich, Lewis	144	44 1/2	22 25
Aldrich, Lewis	166	151 1/2	75 77
Laird, James D.	51	20	10 00
Ober, Benjamin	71	5	2 50
Ober, Benjamin	72	5	2 50
Ober, Benjamin	73	5	2 50

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Olney & Co., No. 418 Montgomery street, San Francisco, on the fourth day of April, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. MOORE, Secretary.
Office, Nos. 77 and 78 Montgomery Block, San Francisco, California.

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the eleventh day of April, 1868, at the same hour and place. By order of the Board of Trustees.

mar21 E. J. MOORE, Secretary.

San Francisco and Castle Dome Mining Company. Location of Works: Castle Dome County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-sixth day of February, 1868, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Treasurer, J. A. Gaddis, No. 320 Montgomery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of March, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-first day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

A. R. SMITH, Secretary.
Office, Room No. 16 Stevenson's Block, Cor. Montgomery and California streets, San Francisco. feb29

Ventana Gold and Silver Mining Company.—Location of Works: Durango, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the eighth day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
C H Robbins	38	22 1/2	\$35 75
E W Taggard	312	165	247 50
M A Thompson	333	5	7 50
E Whiting	138	5	6 00
E Whiting	313	10	15 00
J L Whitnall	not issued	20	30 00
M E Hall	134	2	3 00
M E Hall	137	1	1 50
M E Hall	139	5	7 50
M E Hall	136	18	27 00
Mrs D A Powers	205	2	3 00
Mrs D A Powers	138	2	3 00

And in accordance with law, and an order of the Board of Trustees, made on the eighth day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, S. W. corner

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
1st San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works,
San Francisco, Aug. 29, 1887. 9v15t

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

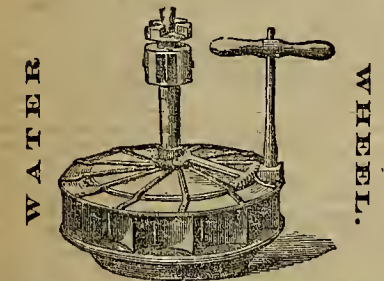
-BY-

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
San Francisco. 5v13f

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALLED AND UNRIVALED IN the United States or the world, have been fully tested in this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REPRESENTS.—E. Stocton, Folsom; O. Simmons, Oakland; Mill at Clear Lake; Morrison Coyille, Lexington; Santa Clara County; J. Y. McMillan, Lexington; Santa Clara County. Send for Circular to

KNAPP & GRANT,
Engineers and Builders for California.

25v13-14 310 Washington street, San Francisco.

NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; as goods require no slinging or landing; consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any lashing or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,
By Joseph Moore, President.
2v15 1f **JOSEPH MOORE.**

HUNGERFORD'S
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Cass & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15f **MORAN HUNGERFORD.**

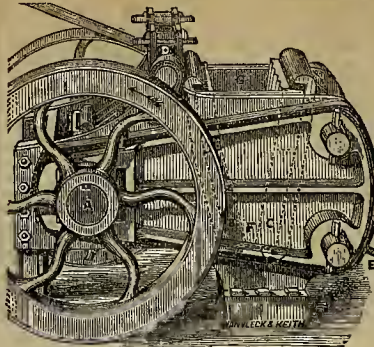
Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYCE, at 435 Brannan street, between Third and Fourth. Refer to Elsen Bros., Flourer Mills; Martin Sien, National Mills; Horace Bros., Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer. 6v16-3m

A FULL ASSORTMENT OF
MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by
CHAS OTTO & CO.,
22v15-3m 312 Bush street.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENTED IMPROVED QUARTZ CRUSHER.

The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, \$600
No. 2.—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour—price, \$850
No. 3.—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour—price, \$1,200

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Filton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

RAWHIDE RANCH, Tuolumne Co., Sept. 23, 1886.
JAMES BRODIE, Esq., San Francisco.—My Dear Sir: I have the pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which is entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
R. F. JOHNSON,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1884. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of compromising, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named are requested to address below.

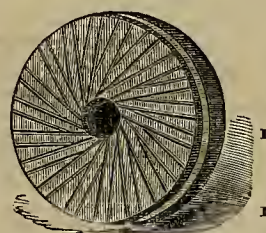
A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1886.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1886.

JAMES BRODIE, Esq., Filton Foundry, or CHARLES RANCLIFFE, Express Building, 402 Montgomery street, San Francisco. 12v13f

C. F. TRAVIS.



Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

PORTABLE

MILLS.

—

Agent for

Dufour & Co's

Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Vellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory.

5v16f 109 Mission street, San Francisco.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,

Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters; Blacksmiths' and Horse-Shoers' Tools.

319 and 321 Pine Street,

Between Montgomery and Sansome, San Francisco. 10v14f

PACIFIC

FILE, REAPER AND MOWER SECTION

Manufactory,

No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge.

Reaper and Mower Sections manufactured. The only establishment on the Coast

25v16-3m First premium awarded at the State Fair, 1887.

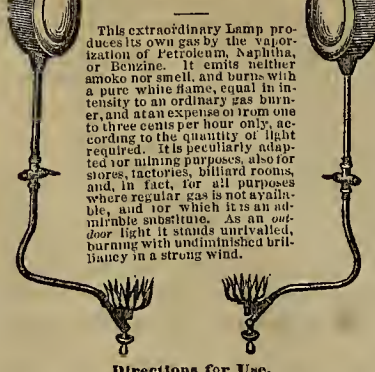
DURRING & KENNEY, Proprietors.

A FULL ASSORTMENT OF

MOLDERS' TOOLS,

Constantly on hand and for sale at low prices, by

CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 22v15 3m

THE CELEBRATED
Self Generating Portable
Gas Lamp.

Directions for Use.

Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn on the tap and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained until the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vise and the burner screwed off. The burner must then be withdrawn, and a fresh piece of stout cotton rag, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

Manufactured solely by JOHN J. HUCKS, original proprietor, Factory, North Beach, San Francisco, and for sale by his agents in every city and town throughout the State. 18v14-3m-8

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1886.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,
14v13f Agents for the Pacific Coast.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for this branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi staves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
5v13-17 Stove Store, No. 125 Clay street, below Davis.

T. STEBINS,

Pattern and Model Maker.

Has recently opened a shop at No. 23 Fremont street, over Clerke & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and Patterns of every description. Jigs, Saws of large additions to my stock of machinery for this branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi staves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

Terms reasonable for all classes of work, and regulated by the style required. 11v16-3m

A FULL ASSORTMENT OF

TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

Steam Gauges, a general assortment of

Hardware, Cutlery, and

MECHANICS' TOOLS,

By CHAS. OTTO & CO.,
312 Bush street, San Francisco.

Wright's Picks for Sale.

THIRTY-FIVE DOZEN FLAT-TOE SURFACE PICKS. With or without strops and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other description of PICKS for sale at REDUCED PRICES. Give me a call at 251 Fremont street, San Francisco. 8v16-3m **JOHN WRIGHT.**

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice. 7v16 6m **H. T. HOLMES.**

HOWE & STICKNEY,

Manufacturers of

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,

etc., executed in the best manner.

No. 525 Mission street, near Second.

Favorable to Inventors.—Persons holding new inventions of machinery and important improvements, can have the same illustrated and explained in the Mining and Scientific Press, free of charge, if in our judgment the discovery is one of real merit, and of sufficient interest to our readers to warrant publication.

PENNSYLVANIA COAL MINES.—We extract the following from the JOURNAL report of the Department of Agriculture: "The mineral wealth of Pennsylvania is well known. Our returns are full of references to the rich iron ores, in many places extensively worked, of the entire length of the Susquehanna valley, of the Schuylkill and Lehigh regions, and of the western slope of the Alleghenies. The anthracite coal, of the eastern and northeastern sections of the State, is of great value; and the bituminous varieties, of the northwestern and western sections, are not excelled in yield and quality by any coal of that character in any coal lands of the United States. In Elizabeth township, Allegheny county, our correspondent estimates \$365,000,000 worth of coal at four cents per bushel, and that at one cent per bushel the coal finding an outlet from the Monongahela river would suffice to pay the national debt. The following description of mining here is thus given:

"The principal vein is called the 'six foot vein,' and dips towards the south, so that at Pittsburgh it is about 400 feet above low water, and at Brownsville is at the water's edge—the distance being 60 miles. The coal is taken from the miner's rooms by wagons, containing usually 25 bushels, and hauled by mules to the mouth of the pit and let down the hill by cable on a railway constructed for the purpose; the loaded wagon drawing an empty one up to the pit. A mine in good order and well worked will produce about 8,000 bushels per day. Four cents per bushel is paid for digging. Many things conspire to prevent constant and regular work, such as very low water, very high water, ice in the river, and occasionally dullness of sale at Cincinnati and other markets below. At the present time, owing to the low water, we have millions of bushels in boats awaiting the 'moving of the waters.' It is estimated that there are \$3,500,000 worth. I consider that our coal trade is as yet in its infancy, and this results from the want of capital as much as from any other cause. Good coal lands vary in price from \$50 to \$500 per acre, owing to their situation in regard to the slack-water."

MIXTURE OF RACES.—Agassiz says on this subject: Let any who doubts the evil of this mixture of races, and is inclined, from a mistaken philanthropy, to break down all barriers between them, come to Brazil. He cannot deny the deterioration consequent upon an amalgamation of races, more wide spread here than in any other country in the world, and which is rapidly effacing the best qualities of the white man, the negro and the Indian, leaving a mongrel nondescript type, deficient in physical and mental energy. At a time when a new social state of the negro is a subject of vital importance in our statesmanship, we should profit by the experience of a country where, though slavery exists, there is far more liberality toward the free negro than he has ever enjoyed in the United States. Let us learn the double lesson; open all the advantages of education to the negro, and give him every chance of success which culture gives to the man who knows how to use it; but respect the laws of nature, and let all our dealings with the black man tend to preserve, as far as possible, the distinctness of his national characteristics, and the integrity of our own.

LARGE BELT.—There is now, says the American Journal of Mining, in course of manufacture at a leather belting factory in this city, what is said to be the largest leather belt ever made. The width is 47 inches; length, 200 feet; weight, 18,000 pounds; and cost \$2,000. It is composed of triplicate layers of leather, making a thickness of three-quarters of an inch, and cemented and pressed so firmly together that it has the appearance of one solid piece.

UTILITY OF THE SAFETY CAGE.—By accident the cable became detached from one of the safety cages at the Imperial-Empire hoisting works, last Saturday, allowing the cage to fall into the shaft. The cage fell but a few inches before the safety apparatus firmly clutched the guide timbers on either side of the shaft and the cage was stopped. The shaft is 900 ft. deep, and but for the safety arrangement parties at work at the bottom would doubtless have been killed. Virginia Enterprise, March 10th.

SOURCE OF ALUMINUM.—Cryolite is the mineral from which aluminum is obtained in largest quantities. It is obtained in large quantities from Greenland. Aluminum is increasing in favor rapidly, as a most beautiful metal capable of superseding silver for many purposes. Bryalite is used in certain metallurgical operations with great profit. The application is kept a secret. Gas Light Journal.

A SCIENTIFIC BILL OF FARE.—The *American Journal of Mining* quotes this anecdote, told by the Paris correspondent of the *Chemical News*: A visitor to a prison asked, are the prisoners well nourished? "Mon Dieu Monsieur," said the guide, "the bill of fare for each day has been prepared by a special commission:—it is 33 per cent. nitrogenous matter, 27 albuminoid, 15 of gelatine, 18 of fibrin, 7 of hydrated matter!" The *Journal* remarks in this connection that the experiments of Messrs. Fick & Wislizenus, "have changed all that," and determined that it was hydro-carbon, and not nitrogen, which supplies the motive power. In that case, the French prisoners were simply the victims of science. The *Journal* continues: "Votaries of science though we are, we feel a disinclination to this method of uniform feeding, according to chemical reactions. We prefer a bill of fare to a certificate of analysis. Azote has not for us the charms of beefsteak, nor will hydro-carbon tickle our palate like sugar. Besides, even if men are nothing but peripatetic chemical laboratories, they are not all alike. These abstract theories ignore a class of facts (such as nausea, and the agreement or disagreement of particular foods with particular individuals) which enter into the philosophy of life quite as really as the equations of chemistry. We are willing to have our constituents determined; we recognize the interest and value of theories as to how we live and move and have our being; we are content to consider everybody but ourselves but a mere compound of bone and tissue, or other forms of solidified gas; but we do not consider ourselves 'in that bony light,' and we would rather trust our physician, or still better, our own experience, on the subject of our diet, than the profoundest chemist that ever lived."

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20.....10 cents.
Over \$20 and not exceeding \$50.....15 cents.
No fractions of cents to be introduced in an Order.
United States Treasury Notes, or National Bank Notes only received or paid.
To send over \$50, additional Orders must be obtained.
Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out:
No. Amount Date,, 1886 ..

MONEY ORDER.

Required for the sum of \$.... Payable at
State of Payable to Residing at
State of Sent by
Residing at State of
ENTERED IN REGISTER:

Names of parties and places, and the sums, to be written in the plainest possible manner.

As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.

Office.	County.	Office.	County.
Auburn.....	Placer.	Napa City.....	Napa.
Bear River.....	Solano.	Nevada City.....	Nevada.
Campbellville.....	Yuba.	Alameda.....	Alameda.
Chico.....	Butte.	Oroville.....	Butte.
Columbia.....	Colusa.	Petaluma.....	Sonoma.
Colusa.....	Colusa.	Placerville.....	El Dorado.
Dowdenville.....	Glenn.	Red Bluff.....	Tehama.
Dutch Flat.....	Placer.	Sacramento.....	Sacramento.
Eureka.....	Humboldt.	Santa Rafael.....	Marin.
Folsom City.....	Sacramento.	San Francisco.....	San Francisco.
Forest Hill.....	Placer.	Santa Cruz.....	Santa Cruz.
Georgetown.....	El Dorado.	San Jose.....	San Jose.
Glennville.....	Glenn.	Santa Rosa.....	Sonoma.
Grass Valley.....	Sutter.	Shasta.....	Shasta.
Hendricksburg.....	Sonoma.	Solano.....	Solano.
Jonestown.....	Yuba.	Stockton.....	San Joaquin.
Jackson.....	Amador.	Suisun City.....	Solano.
La Porte.....	Plumas.	Susacville.....	Lassen.
Los Angeles.....	Los Angeles.	Vacaville.....	Solano.
Mariposa.....	Mariposa.	Vallejo.....	Solano.
Marquetteville.....	Alphie.	Vernalis.....	Tulare.
Marysville.....	Yuba.	Waterville.....	Santa Cruz.
Martinez.....	Contra Costa.	Weaverville.....	Trinity.
Mokelumne Hill.....	Calaveras.	Wilkeson.....	Los Angeles.
Monterey.....	Monterey.	Yreka.....	Siskiyou.

NEVADA.

Office.	County.	Office.	County.
Virginia City.....	Storey.	Austin.....	Lander.
Carson.....	Ormsby.	Aurora.....	Esmeralda.

OREGON.

Office.	County.	Office.	County.
Albany.....	Linn.	La Grande.....	Umatilla.
Canyon City.....	Grant.	Oregon City.....	Clackamas.
Corvallis.....	Benton.	Portland.....	Multnomah.
Dallas.....	Polk.	Roseburg.....	Douglas.
Eugene City.....	Lane.	Salem.....	Marion.
Jacksonville.....	Jackson.	The Dalles.....	Wasco.
Lafayette.....	Yam Hill.	Umatilla.....	Umatilla.

IDAHO TERRITORY.

Office.	County.	Office.	County.
Boise City.....	Ada.	Ruby City.....	Owyhee.
Idaho City.....	Boise.	Lewistown.....	Ney Perce.

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena.....	Yellowstone.	Virginia City.....	Madison.

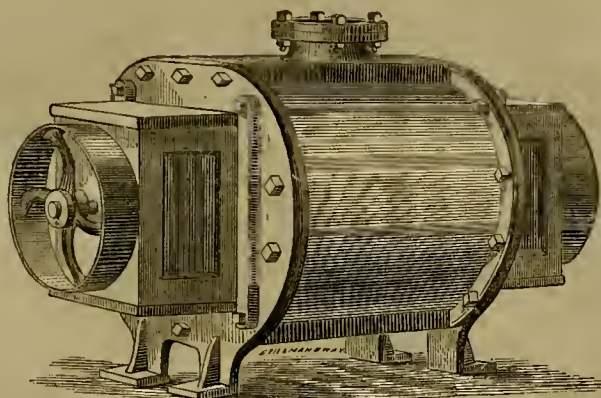
WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia.....	Thurston.	Vancouver.....	Clark.
Shelton City.....	Pierce.	Walla Walla.....	Walla Walla.

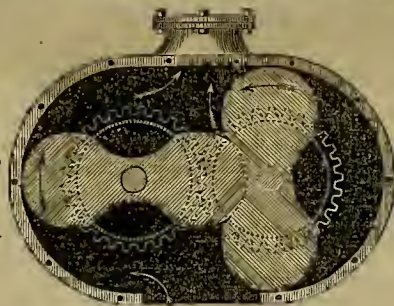
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1861; July 21, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Atna Iron Works, San Francisco, and many other places.
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

KEEP, BLAKE & CO.,
Globe Iron Works, Stockton, Cal.

WE ARE NOW OFFERING OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFFY COMPETITION.
Our Stock of Clothing Consists of
ALL THE LATEST STYLES

BOTH OF MATERIAL AND FINISH.
A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.

J. R. MEAD & CO.,
Cor. of Washington and Sansome streets.

HAYWARD & COLEMAN,
IMPORTERS AND REFINERS

Illuminating, Lubricating,

PAINT OILS!

CONSISTING OF
KEROSENE, LARD, SPERM, ELEPHANT, POLAR,
TANNERS', NEATSFOOT, BOILED AND RAW
LINSEED, CASTOR AND CHINA NUT.

SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of Mill owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning oil.
A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!
An elegant and complete assortment on hand.
1913-3m 414 Front street, San Francisco.

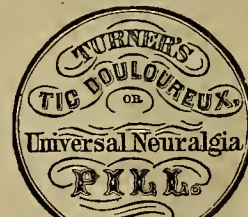
Our Patent Agency.
THE PATENT AGENCY OF THE MINING AND SCIENTIFIC PRESS has been signalized with remarkable success during the past two years. The importance to the inventive genius of this coast of a thorough and reliable agency for the solicitation of LETTERS PATENT from the United States and foreign Governments cannot be over-rated, and the Proprietors of the Press, feeling the responsibility which rests upon them, and the reward which must follow the faithful performance of their trusts, will take care to afford inventors every advantage to be secured to them through a competent and responsible agency upon this coast.

MECHANICS' Mill and Manufacturing Co.

Cor. Mission and Fremont streets,
SAN FRANCISCO.
Formerly James Brokaw, Proprietor.

This establishment is now under the control of a Joint Stock Company, composed of the old employees, is supplied with all the

Modern Improvements in Machinery,
And has the best facilities in the State for furnishing Building with every description of WOODWORK FINISH.
All orders promptly and carefully attended to.
8v16-3m ASA R. WELLS, Manager.



A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
NERVOUS
DISEASES.
Its Effects are
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NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

PACIFIC ACADEMY OF MUSIC.—March 20th. Capital stock, \$250,000; 2,500 shares, \$100 each. Trustees: Ben. Holliday, Chas. E. McLean, Milton S. Latham, I. Friedlander and Tiburcio Parrott.

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CAPITAL HOMESTEAD ASSOCIATION.—Mar. 20th. Capital stock, \$32,025; 105 shares, \$305 each. Trustees: James F. Crossett, William F. King, Frederick G. Smith, Wm. B. Rand and Henry R. Gregory.

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PACIFIC ELASTIC SPONGE Co.—March 24th. Capital stock, \$50,000; 500 shares, \$100 each. Trustees: W. R. Strong, H. N. Connell and A. S. Ferris.

COLLEGE HOMESTEAD ASSOCIATION.—Mar. 26th. Capital stock, \$150,000; 500 shares, \$300 each. Trustees: S. F. Michel, Warren Dutton, C. H. Pollard, L. L. Robinson and Robert Ockell.

UNION MILL AND MINING Co.—March 27th. Capital stock, \$1,500,000; 1,500 shares, \$100 each. Trustees: Wm. E. Barron, Thos. Bell and Thos. Snnderland.

SMELTER WANTED.—Any person with good references, capable of taking charge of one of the shifts of a furnace employed in the reduction of argentiferous lead ores, can learn of a situation by applying at this office. See advertisement in another column.

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment of himself, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard F. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and fatigues with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1863. 10v16 3m

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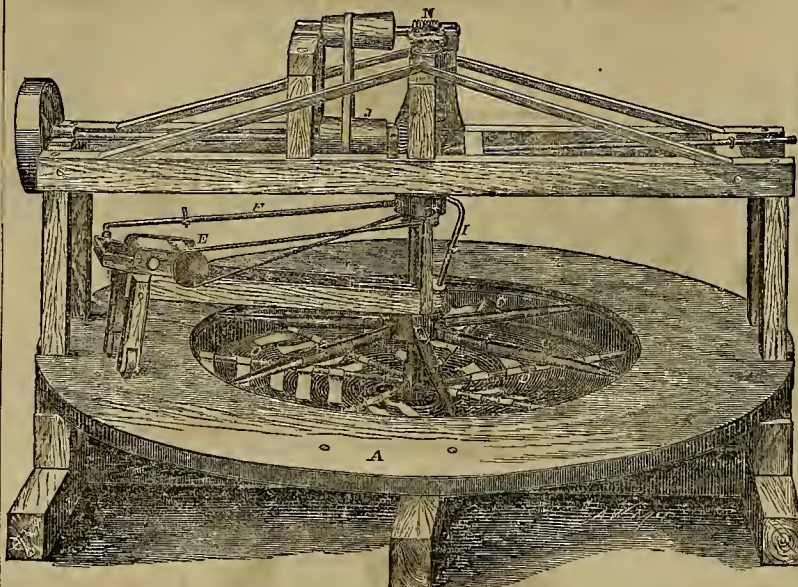
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The illustration given herewith, was fully described in the *Mining and Scientific Press* of March 21, 1868.

One of these machines may be seen in constant operation at the Eureka (Watt's) mine in Grass Valley, where it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill, near Virginia City.

For further information, apply to **THOMAS N. PAINE**, Grass Valley, California.

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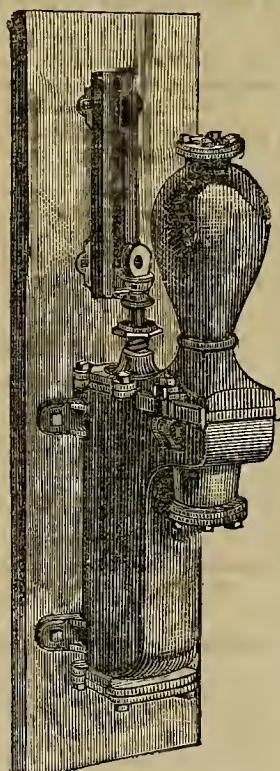
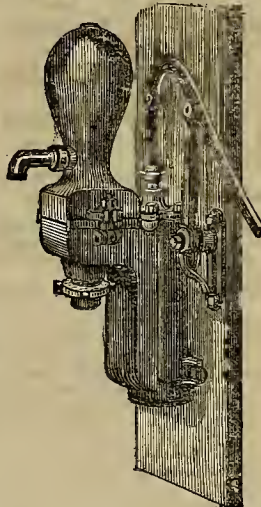
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SAN FRANCISCO, SATURDAY, APRIL 4, 1868.

VOLUME XVI.
Number 14.

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MINING SUMMARY.—Comprising late intelligence from the various counties and districts in California, Colorado, Dakota, Idaho, Nevada, Arizona, Montana, and Oregon.
Stock Prices—Bid and Asked.
San Francisco Metal Market.
San Francisco Market Rates.

[Editorial Correspondence.]

Work at the Hoosac Tunnel.

WESTFIELD, Mass, Feb. 12, 1868.

NOTE.—It is intended to state facts as briefly as possible in this article, mainly from notes and observations made Nov. 18th and 19th, 1867. The object is to afford a more direct railroad thoroughfare, with light grade, from Boston to Troy.

[Continued from Page 193]

FOUR POINTED DRILLS, with cross-shaped (+) edges, are used in the machines; steel $1\frac{1}{2}$ -inch; cutters 2 to 3-inch bit. The drills are shaped with a sledge. Sanderson's steel, manufactured in Sheffield, Eng., is principally used.

CHARLES BURLEIGH, INVENTOR

of these drills, is an owner and superintendent in the works of the Putnam Machine Company, an extensive and prosperous establishment in Fitchburg, Mass. Mr. Burleigh had charge of manufacturing a number of machine drills, under direction of the State Commissioners, which worked effectively at first, but ultimately proved a failure, by reason of constant breakage. Observing the difficulties encountered with the first machines, and discerning the true remedies, he constructed an article which has proved efficient, saved the State already, in cash, \$100,000,—and probably the tunnel from abandonment. The patent for this machine is now owned by the Burleigh Rock Drill Company. The Putnam Machine Company have recently constructed a building specially for the purpose of exhibiting the drill in operation. It is the intention of the inventor to have one of the machines exhibited at the Mechanics' Institute Fair, in San Francisco, this season. It might help the Sutro Tunnel out,—or in, rather.

Over \$30,000 has been expended in perfecting the Burleigh machine, and the purchase of conflicting patents. The patent of J. W. Fowle, dated March 11, 1851, was bought by Mr. Burleigh in 1865. A reissue was secured June 1, 1866, claiming the attachment of a drill bar to a reciprocating piston, driven by air or steam. Another patent is dated Nov. 27, 1866. Mr. Burleigh thinks the

FIRST DRILL EVER PATENTED

was a Z-shaped cutter, of large size, to work by horse-power, by Mr. Singer, of Lockport, N. Y. His patent was dated about 1836.

A company of contractors engaged in deepening the Illinois Canal, between Lock-

port and Chicago, for the better drainage of the latter city, are using a much larger class of Burleigh machines than those described. They have a 12-inch cylinder and 14-foot piston, driving a 5-inch Z drill, which shape is favorable for soft rock. During the third week in January, one machine drilled 434 feet, the bores averaging seven feet deep each. The contractors have seven miles of rock excavated.

OPERATING THE DRILLS—ELECTRICAL FIRING.

Two men attend each drill. The holes are made from three to five feet deep. When a sufficient number are drilled—about thirty—the drill carriages are rolled back from 100 to 200 feet, past the gates. The holes are then charged with gunpowder, and electric exploders. [This exploder, and its mode of operation, was described in our

After the blasts, the trucks for removing the rock are brought forward, as are also the flexible air tubes, which furnish a volume of air sufficient to quickly clear the heading of smoke. The broken rock removed, the drills are pushed forward and quickly put in operation. Sufficient air is exhausted by the drills, while running, to render the atmosphere quite fresh, and we might say agreeable, but for the fine floating dust produced from the bores, which accumulates rapidly enough to soon change the color of one's suit into light gray.

Six blastings are made in twenty-four hours,—four hours being employed to each blasting,—one for drilling and three for charging, firing and cleaning away. From five to seven feet advance is now made per

consists of four cylinders of 25-inch diameter and 20-inch stroke, arranged in a circle of about twelve feet diameter. These are worked with one crank and side rods, the crank being fast to the journal of the turbine. A 1-16th inch jet of water is forced with 104 pounds pressure through the pistons, to allay the heat generated by compressing. These compressors are run at forty revolutions per minute, and are capable of furnishing 280 horse power. They supply air for ventilation through a 12-inch iron pipe 4,200 feet in length. Four smaller compressors, with cylinders of 13-inch diameter and 20-inch stroke, arranged same as above, run at 120 revolutions per minute, furnish air for working the drills, and are capable of giving 125 horse power.

PNEUMATIC CONDUCTING TUBES.

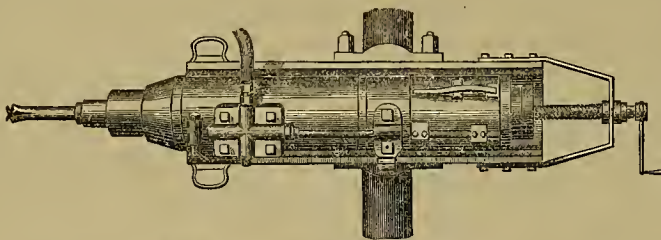
By this machine the air is forced 4,200 feet, through 8-inch pipe, connecting with some 400 feet of 4-inch pipe. Then comes 200 feet of portable 4-inch rubber pipe leading to the heading. Attached to the latter, are two sections of smaller flexible hose leading to the drill carriages, where the volume of air is again subdivided and conducted through still smaller tubes to each individual drill. Thus the power of the falling water is caught by the turbines, "hottled up" by the compressors, and used in the tunnel at a distance of over a mile.

The 4-inch iron pipe is made in 6-foot sections, weighing 66 pounds each, and costing \$3.50. It is cast with with bolt holes and face perfect enough for use without finishing. Pressed paper is used for packing the joints. No serious difficulty is experienced from leakage. Rubber hose is most expensive and least durable; but its use for following up the heading, and the ease with which it is coupled and uncoupled and removed from danger on the occasion of blasting, renders its service indispensable. It occasionally bursts. Jones' (Philadelphia) patent coupling is attached to the rubber hose. The coupling is done instantly, by pressing the ends of the pipe together, spring, clamps, clasping and holding them firm. An inner ring of rubber is forced outward by pressure of the air, rendering the joint self-tightening.

Mr. Hall tested, by mercury gages, the loss of power in the first 2,800 feet of pipe, finding it to be 1 lb in 35. The same test, applied to the next 1,800 feet, indicated a loss of 5 lbs in 35. In the latter case, the use of two sizes of pipe may account for a large proportion of the loss. It requires 3-horse power from the water wheels to produce one at the heading.

THE NEW BLASTING POWDER.—An important series of experiments have been made the past week near the Mission, to test the safety of the new dynamic powder. It is claimed that the results show that this powder is more safe to handle and transport than common gunpowder.

THE engineer of a steam saw-mill in Bristol, Indiana, is a woman. She keeps everything as neat as a parlor, and has a little piece of carpet by the side of the cylinder.



BURLEIGH'S PATENT PNEUMATIC ROCK DRILL.

We have had engraved and give herewith an illustration of the Burleigh Rock Drill, referred to by our correspondent as proving so useful and effective at the Hoosac Tunnel. This drill is said to combine the advantages of simplicity of construction, great strength of parts, compactness and lightness, weighing from 300 to 1,000 pounds, according to size. It is made for drilling holes from one and three-fourths to five inches in diameter. It is convenient, easily handled, not liable to get out of repair, and is said to be in every respect the most practical drilling machine ever devised. It will drill from two to six inches per minute, according to hardness of the rock. It is also claimed that the drill points will advance several times more at each sharpening than when operated by hand and sledge. This is said to be proven by records kept at the Hoosac Tunnel, where these machines have been in constant use, night and day, for the last fifteen months. This machine is so constructed that the piston bar is the only part of the machine which receives the shock resulting from the blow upon the rock. This piston bar, to which the drill-point is directly attached, is made from a solid bar of cast steel. With a pressure of fifty pounds to the square inch, the drill strikes the rock from 250 to 300 blows per minute. It is provided with an automatic feed and rotating device, by means of which the drill is partially rotated at each stroke, and advanced toward the rock as required. The machines vary in size from fifty inches length, and cross section of 12x15 inches, to eighty-four inches, and cross section of 14x16 inches, and will feed forward, without change of drill-points, from thirty to eighty-four inches, according to size of machine. The above illustration will convey a very intelligible idea of the mode of constructing the drill.

correspondent's letter published February 29.] Attached to each exploder is a small copper wire, connecting it with the main wires leading a safe distance to the battery. The wires are all insulated with gutta percha. When every charge is connected with the battery, the signal is made, two or three turns are given to the crank of the battery, a knob is pulled and the thirty charges explode together, uniting their terrible strength against the adamantine rock. Of course the noise and effect is greatly augmented by this simultaneous explosion. Besides, the fulminating powder of the exploders ignites the entire charge of powder at once, which is not the case with ordinary fuse. In the central shaft this method of blasting alone advanced the work from 18½ to 23 feet per month. It is surer than with fuse, and is considered cheaper in large operations.

Sixty men are employed here, including carmen, etc., working eight hour shifts. During 1867, this heading was advanced 1,051 feet,—an increase of 459 feet over the previous year.

THE MACHINE SHOP,

situated a few rods from the tunnel, presents much interest. Mr. Wm. Hall, superintendent, appears well versed in his business, judging from his intelligent exposition of the work in his department. Here is seen the mechanism of the pneumatic drills in use, and relics of experimental and rejected devices. Mr. Hall claims decided improvements made by himself in the drill from time to time. Two 6-foot turbine wheels supply power for the shop. Additional turbines are being set for use.

COMPRESSING ENGINES.

The basement story is occupied by two sets of compressing cylinders. The largest

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

San Francisco Earthquakes.

BY DR. JOHN A. VEATCH.

As these not very desirable visitors come to us with uncomfortable frequency, it becomes a matter of interest to inquire into the probability of their continued gentle demeanor, or whether some energetic quake may not, ere long, be rude enough to make a ruinous smash of things, and smother us in the crushed fragments of our own homes. As we live on a coast where volcanic agencies have left proofs of former activity, and where numerous hot springs and sulphurous emanations attest that their smouldering fires are not yet extinguished,—the event above contemplated falls largely within the limits of the possible. But is it probable?

Without stopping to investigate the theory of the *modus operandi* of earthquakes, I shall only allude to the fact of their occurrence in maximum force and frequency in the vicinity of volcanoes subject to alternate fits of repose and activity. They also linger for ages in such localities, after all other external volcanic manifestations have totally ceased; decreasing in strength and frequency as the hand of Time heals and smooths over breaks and ruptures, and soothes the subterranean fires by opening other and distant outlets,—until they come, finally, only at long intervals, in gentle tremblings, like an age-enfeebled warrior re-visiting his youthful battle-fields. Shocks of more or less violence precede volcanic eruptions, and ease off as the craters open and the external flow of lava is established; proving their intimate connection with the pent-up fluid matters struggling to escape. The violence affecting any given point within the area of agitation is of course in proportion to its distance from the center of disturbance,—other conditions being equal. The irregular surface, the heterogeneous material and variable tenacity of the crust produce ever-varying effects upon different localities of a district simultaneously disturbed by a wide-spread force, causing the false appearance of many independent local actions. Local and circumscribed disturbances doubtless often occur; the earth-wave expanding concentrically from a central focus. These waves are, however, usually propagated along a line of maximum intensity, as in the course of a volcanic mountain chain.

The point of interest with us is to determine this central line of intensity in the matter of our own earthquakes. There are probably three of these lines, corresponding with the Sierras, the Coast Range, and a submarine range west of and parallel with the last named, along which lines our earth-waves travel; and from points within which local shocks radiate. If we take the number of heat-vents still existing as a measure of intensity of the fiery activity lingering yet beneath these mountain ranges, we will find the Coast Range far exceeding the Sierras in that regard. The *submerged range* I infer to be far more active than either of the others. Its existence is matter of theory, based, however, on two strongly suggested facts. First, there is a sunken ridge, known as the Cortez Shoals, seventeen miles long, lying southwesterly and distant forty-six miles from the island of San Clementes, and pointing in a direction parallel with the coast. It is suggested in the Report of the Coast Survey for 1862, that other similar developments might be looked for in a line with this. (See Coast Survey Report for 1862, page 286.) Second, this shoal, or sunken ridge, is *volcanic*, according to the statement of Captain Cropper, of the steamer Cortez, who reported seeing the eruptions. A volcanic product, boracic acid, is found in the sea water from about this point northwards along the entire California coast, and even to Puget Sound. This unusual component of sea water is found within a narrow belt along the shore, not more than thirty or forty miles wide,—rendering it probable that a line of volcanic emanations exists within the length and

breadth of that space,—rendering it probable, too, that Captain Cropper was *not* mistaken, as has been assumed in his statement.

The Coast Range presents the same peculiarity of yielding boracic acid, along with the hot sulphurous waters of its numerous mineral springs. At a few points boracic salts exist to a very large extent, as at the well known "Borax Lake." The entire product of the Coast Range is insignificant, however, compared with the great submarine supply. The quantity is not sufficient to be detected in even the larger rivulets, draining the mountains, to say nothing of the rivers and the sea itself, into which they empty. Therefore, the presence of the acid in the shore waters of the ocean cannot be accounted for on the hypothesis of being brought from the coast mountains.

The ocean supply can only be accounted for on the supposition of a submerged volcanic chain of considerable activity, yielding boracic acid in large quantity.

If the theory is correct, we may rationally locate the focus of disturbance of our hardest earth-shocks on this line. Although shocks doubtless emanate from the Coast Range line, yet their comparative strength and frequency would probably be in proportion to the relative activity of the two lines.

I therefore conclude, that San Francisco is removed considerably from the central disturbance of either the coast line or submarine line of earthquakes; that the intensity of the shocks will therefore be always greatly mitigated; and that the fury of the heaviest shocks will be expended on the sea waves thirty or forty miles from the shore; and therefore the shore is probably safe from any destructive violence.

COURSE OF THE EARTH WAVE.

Our shocks seem generally to come from the south and proceed north. If we imagine our earth-wave having its center of disturbance in the submerged line above named, and moving along it towards the north, spreading out its wings on either side as it rolls onward, the result would be as the shore wave passed under San Francisco, to sway perpendicular objects first to the north, or perhaps to the northeast, and then back again, uplifting at the same time. Two or more of such movements might occur, and they would follow the reactionary wave falling in the wake of the central disturbance, to fill up, as it were, the depression produced by its onward movement. This would cause an inclination of perpendicular bodies, first towards the west and then towards the east, nearly at right angles with the first movements. These two classes of movements are actually observed in most cases where both the initial and closing motions are noted. They prove conclusively that the center of disturbance passes on one side, and not under the city; for in the latter case the movement would be only back and forth in the direction of the passing wave.

Shocks where the first heave is toward the north and east, probably are located in the marine line of disturbance, the wave moving north; those giving a southwest heave probably come from the coast line, the wave moving in the same direction.

It is to be regretted that no systematic mode of observation has heretofore been applied to these interesting phenomena. It is to be hoped some of our scientific men may have the means and leisure ere long to establish some mode of noting, with comparative accuracy, the details of earthquake action.

San Francisco, March 31st, 1868.

GODOLPHIN.—The following is from a small book recently published in England, entitled, "The Mining Fields of the West:" "At the east foot of the Godolphin Hill there is a dreary looking valley, filled with mounds of broken rock and crumbling ruins, marking the site of the old Godolphin mine, which was formerly so rich. Here also is situated in close proximity to the remains of the old mine, the mansion of the now extinct family of the Godolphins. Although gone very much into decay, and altered to adapt it to the requirements of a modern farm house, sufficient of this fine old building remains to attest its former grandeur, and to show that it was once the residence of a great family. It is still surrounded by trees, the remains of the woods which, without doubt, at one time occupied a much larger area, clothing the neighboring valley, and extending up the hill. The valley, which now looks so desolate, must have presented at one time a very different appearance—filled with foliage, affording cover for game, and watered by pleasant streams, in which fish abounded. This place was the seat of Earl Godolphin.

The Pacific Woolen Mills.

As manufacturing is becoming such an important branch of industry in San Francisco, and as the woolen manufacturers have peculiar advantages in this State, it would be useful and interesting to know the process of converting wool into the various articles of under-clothing, as we recently witnessed it at the Pacific Woolen Mills in this city. There is a great deal that we can find that is interesting about stockings, and before speaking of the manufacture of them we will briefly consider their history.

Stockings were not used by the Romans, even when they had attained their highest civilization; and they were quite unknown to any of the other great nations of antiquity. The Northmen first wore a garment they called hose or trousers, which extended from the waist and covered the lower limbs; a few centuries ago this was converted into two articles of clothing—the upper part retaining the old name, trousers or hose, and the lower part being called half-hose. They were first made of cloth, by the tailor, and were therefore very clumsy, and often formed a great impediment in walking, especially to a pedestrian traveling a long distance. The modern stockings are a kind of fabric formed of an innumerable quantity of little knots, called stitches, loops or meshes, intermingled with one another. The operation of making these meshes is called knitting; it is exceedingly simple, acquires no straining of the eyesight, no unhealthy position, and can be performed as easily and as conveniently when walking as when sitting. It is doubtful to what nation we are indebted for the invention of knitted stockings; some attribute it to the Scots, on the ground that the first works of this kind came thence; they also say that it was on this account that the company of stocking knitters, established in Paris in 1527, took for their patron, St. Fiacre, who is said to have been the son of a king of Scotland. The most prevalent opinion, however, ascribes the honor of the invention to the Spaniards, and fixes its date in the sixteenth century. The name of the inventor is entirely unknown.

The stocking loom was invented in the year 1589, by William Lee, a native of Nottingham, England, and Fellow of St. John's College, Cambridge. The French have strongly contested this point with the English, but the only claim the former can lay to the invention, is based on the fact that Lee first made it public in France, after despairing of its success in his own country. It is an exceedingly complicated machine, consisting of 2,000 parts. Aston, an apprentice of Lee's, made some improvements in the loom, and laid the foundation of the stocking manufacture in England. In 1663, he, with seven others, received a patent, which gave them certain privileges to an extent of ten miles around London. In 1758, a machine for making ribbed stockings was patented by Mr. Strutt, of Belper. In 1838, stocking frames, with a rotary action similar to those now universally employed, were successfully brought into use in Nottingham.

Silk stockings were very expensive about the time of Queen Elizabeth, and were only worn on very grand occasions; according to Gascoigne, the poet, the greatest ornaments in dress were knit silk stockings and Spanish leather shoes. Woolen stockings were quite common about this time, but cotton ones were not introduced till after the 17th century.

Having thus given a short sketch of the history of stockings, we will now proceed to their manufacture, which is illustrated in the Pacific Woolen Mills. This factory is situated on Folsom street, between Eighteenth and Nineteenth. It is a large, four story brick building, with extensive rooms well lighted and airy. The yard occupies the whole extent of the block. In connection

with the mill, all merely mechanical labor is performed by Chinamen, of whom there are about sixty employed. About twenty white men are engaged in work that is more complicated, or that requires more ingenuity and skill in its performance. They use about 250,000 pounds of wool and 150,000 pounds of cotton annually. The wool is received in the fleece, which frequently contains eight or ten different kinds. It is first divided into coarse and fine; the former is long and either straight or irregularly curled, the latter is regularly curled. It is next sorted into parcels according to its fineness, strength, color, cleanness and weight; it requires much practice to be able to sort it, and to distinguish those differences which are not perceptible to common observers. The wool is next placed in a large iron trough filled with a strong mixture of soap and alkali;—a machine called a scourer, then moves the wool about until it becomes thoroughly impregnated with the mixture, which frees it from the natural grease. It is then taken to a large platform in the yard, and spread out to dry. In a few hours it is ready for the picker,—a complicated machine of recent invention, which removes all hurs and sandy and loose impurities from the wool. Before the invention of this machine, the wool underwent the process of willing or willowing; its object being to separate or disconnect the locks and remove all loose impurities. As this does not always have the desired effect, either boys or women, called wool moaters, are employed; the locks are afterwards more thoroughly separated by the process of cribbling. The wool when quite clean is put in a mixing picker, next carded, and then spun into yarn. The old method of spinning yarn is very laborious in comparison with the improved method now in common use. The wool by means of the old fashioned spinning jenny was brought into a soft, weak thread, the spinning machine converted it to the proper size; it then remained to be wound, before it was ready for weaving. By the invention of a very ingenious machine, the self-acting mule, much time and labor is saved,—the spinning and winding all being performed on this one machine. The wool is now ready to be woven. The webbing for making the shirts and drawers is produced on a circular knitting frame, containing a great number of steel needles, working at the rate of 200,000 stitches a minute. These machines turn out fifty dozen of shirts and drawers a day. The stocking frames are rotary in action, and the operation is similar to that of the larger frame, just mentioned. Some looms make ribbed work, others plain, but both are capable of producing stockings of every degree of fineness and coarseness,—and of every shape, size and color. They turn off about 150 dozen of stockings per day.

This is the last manufacturing process; the goods are now cut out and shaped in various sizes—after which they are given out to be stitched and seamed. This gives employment to about 200 women of the city. When returned they are cleansed in a washing machine, and then dried in a hydro-extractor or centrifugal machine, which moves with great velocity, making a thousand revolutions in a minute. The articles are now either bleached or colored, after which they are pressed. The machine used for pressing the shirts and drawers, is the first that has ever been constructed in America. It was made at the East expressly for this factory, and was examined by many manufacturers and scientific men there. About fifty girls are employed in trimming the shirts and drawers, and on the sewing machines which are run by steam power, making 2,000 stitches a minute; an advantage of nearly 1,500 stitches a minute over those run by the foot. These are the only sewing machines worked by steam on the Pacific coast. The boxes in which the goods are arranged for market, are made on the premises, the card-board is imported from the East, and the machinery used for making them is the latest and the most perfect of its kind. There are about 145 varieties of goods finished here.

These mills are capable of turning out goods to the amount of \$350,000 per annum. They are now setting up machinery to make the best fashioned work, which has hitherto been imported from England. They will then have facilities for manufacturing half a million dollars worth of goods, which in quality will be well able to compete with the finest produced in the world.

ARTIFICIAL IVORY.—Artificial ivory may be made by dissolving 12 oz. amber, and 3 ozs. Kouriegum, in wood-spirits, or alcohol; then adding 7 ozs. of fine china-clay, and mixing together thoroughly by stirring, aided by a gentle heat. The composition is then to be placed in dies, and made into the required form.

Mechanical.

STEAM ON COMMON ROADS.—M. Larmen-jat has contrived a steam carriage, in which, by two small driving wheels placed inside the larger ones, the force of traction can be largely increased at will. A communication to the *London Mining Journal*, thus speaks of it: The substitution of one pair of wheels for the other is effected without stopping the engine, by a very simple mechanism. One can understand that with one of these engines we can attain on common roads a velocity of seven to ten miles an hour with a load; if at a given moment we can reduce the velocity of the engine from ten to two and one-half miles an hour, still keeping up the velocity of the piston, its power will be increased fourfold. This is done by lowering the inner driving wheels, and raising the outer ones from the ground.

As a first essay, the machine which worked at the Exhibition, of 3-horse power, started from the Auxerre station with a heavy lorry, carrying a load of one and a half ton, also containing 27 persons, in all three tons of load, without counting the weight of the lorry; with this it entered into Auxerre by the Porte du Temple, climbing up a long inclination of 1 in 12½, by means of the small wheels; the mean velocity, going and returning, was five miles an hour. The engine then made a trip of sixty-five miles, drawing a diligence containing fifteen persons. The time made was an average of over six and a half miles an hour. The engine weighs less than one-half ton per horse power. It has two cylinders, with reversing gear; the crankshaft communicates directly, by means of a pinion, with the axle of the driving wheels; it carries two independent pinions, so that if one of the gearings gives way the other would be ready to work. The two smaller wheels are maneuvered with the greatest ease by means of a lever moved by a screw, and are set in motion by a gait-chain. These wheels are the additional "horses" put on, when necessary, to climb up or descend steep inclines or bad roads.

THE NEW PLAN FOR STREET RAILWAYS. The following notice of a plan which we have already alluded to, is from the *London Mining Journal*: The report of the engineers of Paris upon Mr. Eastman's system, made by order of the Prefect of the Seine, is most satisfactory, the result being that they proposed to establish, at the expense of the city, and with the concurrence of the inventor, a double track of his new system on the quays of the left bank, from the Bridge du Carrousel to the Champ de Mars. Mr. Eastman's rails have a concave form, the segment of the circle that represents their concavity being four English inches, and half an inch at its greatest depth. Any carriage having the breadth of track of the rails can run in their grooves, or pass in or out or across them without difficulty. The breadth of these grooves is too small to allow the feet of the horses to be entangled, or catch in them, and their depth is so slight that the wheels can easily turn out. The rails are strengthened beneath by a flange, which holds them in place, and gives them firmness. They are kept constantly free from obstruction by a broom (or plow) fixed to the carriages in front of the wheels. Their cost is less than that of ordinary rails (as they may be made lighter, and their position is beneath the surface, and not subject to side strains). Cast iron may sometimes be substituted. The carriages of Mr. Eastman's system have wheels with a convex edge, of a smaller radius than that of the concavity of the rails. The friction surface is thus very small, and the friction much reduced. The axles are united by connecting rods, that so act upon each other as to place themselves always exactly in the curves (or the axles on the radiating lines from the center of the circle) that is described by the wheels. The hind wheels thus follow exactly the tracks of the front wheels, and the carriages will turn with facility and safety in curves of a very small radius. The carriages may also run on any other road as well as ordinary carriages. They have their bodies very near the ground, so that persons may get in and out without difficulty. The carriages are also spacious, light and comfortable.

FITTING BOILER TUBES.—Improvements in the mode of fitting the tubes in the flues of steam boilers, have been introduced by Messrs. Wood, of Sheffield. In placing cross or diagonal tubes in the flues of steam boilers, great difficulty is experienced, more particularly when the flues are finished and fixed in the boilers; and it is often found absolutely impossible to take them out whole, or to put new ones in, without taking out the flues, or otherwise using packings to make up the length of the diagonal tubes, which method entails difficulty in making the ends of the diagonal tubes tight. By the system described by Messrs. Wood, the difficulties may be obviated; as the diagonal tubes may be readily fixed in the flue or fire-box of any boiler, whether vertical or otherwise. It is proposed to make the diagonal tubes with a flange at each end, in one and the same piece with the tubes,—both the said flanges to be attached to the flue or fire box of the boiler inside; also, to make the flanged ends of the diagonal tubes at an oblique angle to the center line, so that when the tube is fixed in position, the said diagonal tubes will not be at right angles to the center line of the flue.

TESTING STEAM BOILERS.—Prof. Robinson, of the University of Michigan, gives the following simple method:—Let the boiler be filled entirely full of cold water, even to the throttle and safety-valves, and all closed tight to prevent any escape. Now, by lighting a fire under the boiler, the water will be gradually expanded, and produce a pressure sufficient even to rupture the iron before the temperature of the water arrives at the boiling point. While the pressure is increasing, let the steam-gauge or pressure-indicator be watched; and when the test pressure, which may be twice as great as the working pressure,—or even more,—is reached, a portion of the water may be allowed to escape, and the pressure reduced. The pressure results from the fact that water is expanded more than iron by heat. The process is attended with as perfect safety as the use of the hydrostatic press,—unless the water be heated above 212°, which would not be required unless the boiler leaks. Below this temperature no disastrous consequences would follow, even if the boiler should be torn asunder;—inasmuch as explosions result from the sudden expansion of gases or vapors.

MACHINERY IN ITALY.—From the editorial correspondence of the *Scientific American*, dated Naples, January 28th, we extract the following:—"There still exists in Italy a strong prejudice against the introduction of labor-saving machinery. Mechanics here cherish the crude old notion that machinery would destroy the value of their labor, instead of enhancing its dignity and increasing its demands; therefore they are content to plod on day after day, through weary manipulations, which could be performed much more profitably by a machine. I was informed by an American residing in Florence, that it would not be safe for any one to introduce a circular saw, therefore boards and all other pieces of lumber are ripped by an old-fashioned slitting saw, worked by two men. Of modern agricultural machinery little or none is employed, and all attempts to improve the quality of the silk-worm have failed mainly through the opposition of those who insist upon carrying on the operations of the worm in their own houses. I cannot conceive of a better and more humane service to be done for the advancement of the working classes of Italy, than to instruct them in the proper use of improved tools and processes, and to convince them that great benefits would result therefrom."

BLOWING OUT A BEAST FURNACE.—It is occasionally necessary to blow out a furnace, but not an easy matter in doing so, to preserve its internal fire-brick lining, and at the same time to prevent the adhering of slags and iron to that brick work. A plan which has been resorted to in Prussia, consists in charging the furnace first with coke, and then with limestone instead of ore, and absorbing the heat evolved in the lower strata by the combustion of the coke in the process of burning the limestone. The plan works admirably.

Scientific Miscellany.

PROPERTIES OF ALUMINUM.—Dr. Henry Wurtz of New York has discovered that aluminum will absorb mercury, as lead does; and that in this condition it will oxidize so rapidly as to glow and burn the hand. Aluminum foil rubbed into quicksilver, on exposure to common air takes fire, and is rapidly consumed, the resulting product being hydrate of alumina. This oxide is a feathery mass, and is deposited, in the form of a coating on the foil, so rapidly that its increase is visible to the naked eye. Aluminum has so strong an affinity for oxygen that it has been found extremely difficult to separate the metal from common clay, which is nearly pure silicate of alumina; but when once separated aluminum does not readily unite with oxygen. It does not easily tarnish in air, and will not decompose water. Being a good conductor of heat and electricity, the essential conditions for rapid combustion do not occur, but when the pores of the metal have been filled with mercury, the particles of aluminum in a separate state cannot resist the attack of the oxygen in common air, and the accumulated heat generated by the rapid oxidation of the surface is soon high enough to insure the oxidation of the inner portion of the metal, which, it is supposed, the mercury has not reached. Dr. Wurtz does not thus account for the phenomenon; he believes quicksilver produces an allotropic modification of the metal by which it is brought from a passive into an active state; and suggests that it is possible to reverse this action in the case of elements which are easily oxidized, so that strong electro-positive metals, like sodium and potassium, by being brought into a passive condition, could be handled and exposed to common air without danger. He concludes that ordinary aluminum is in a passive state resembling that of iron, which, when in contact with platinum, resists the action of nitric acid; and he maintains that iron may be permanently held in that condition.

THE MAGNETIC NEEDLE IN VOLCANIC DISTRICTS.—M. Janssen who has been exploring the Santorin region, says that the magnetic needle may be employed to detect disturbances which take place at such a depth that they are not recognizable by the ordinary methods. His observations at Santorin show that there is a powerful magnetic influence in the direction of the volcanic lines marked out by M. Fouqué. He found the magnetic needle to dip much less in those parts beyond the volcanic region than in others. He recommends that the Government require magnetic observations to be made during surveys, etc.; as he says they afford a means of sounding the depth of solid strata, and possibly of anticipating earthquakes.

BLOWPIPE REACTION OF MANGANESE AND CHLORATE OF POTASSA.—The *Chemical News* says that if chlorate of potash be heated by means of a blowpipe, in a tube closed at one end, till oxygen is evolved, and then a trace of manganese added, the potash-salt will assume a purple color, owing to the production of permanganate of potash. This reaction of manganese is quite as delicate as the one proposed by Berzelius.

ACTINIC AND LUMINOUS RAYS.—During the lunar eclipse in September last, a certain portion of the moon which is visible with the telescope, was not shown by the photograph taken. Mr. De la Rue expresses this by saying that more of the moon is eclipsed chemically than is eclipsed optically.

NEW SENSITIVE COMPOUND.—M. Prat, who claims to have isolated fluorine, forms a fluoride of silver insoluble in water, and soluble in ammonia, from which it is precipitated by nitric acid. It is altered by light more rapidly than chloride of silver. The ordinary soluble fluoride of silver known to chemists is, according to Prat, an oxy-fluoride.

FREEZING OF WATER.—M. Moisson has discovered the interesting fact, that a powerful pressure not only retards the freezing of water, but prevents its complete solidification. The pressure opposes the tendency of the water to expand on freezing, and thus virtually lowers the point of solidification.

THE LARGEST REFRACTOR YET MADE.—Mr. Cooke of London has just completed a 25-inch object-glass. The telescope has been subjected to the usual tests in resolving celestial objects, and is pronounced optically excellent.

ESTIMATION OF LEAD BY PRECIPITATION. M. Stolba estimates lead by precipitating it in a metallic state. He treats both soluble and insoluble lead combinations with zinc in the presence of water acidulated from time to time with hydrochloric acid; the reduction is effected at the temperature of the water-bath in a platinum capsule; the lead is deposited partly on the sides of the capsule and partly on the zinc, whence it is easily dislodged. When the reduction is complete, which is easily discerned by a clean surface of the zinc remaining brilliant in the liquid, decant and wash the spongy deposit of lead with water. As pure water might dissolve small quantities of lead, M. Stolba recommends an addition of a drop of sulphuric acid. After washing, dry the lead first in a water bath then at about 200 C. Even then its exact weight cannot be ascertained because it has undergone a partial oxidation. After weighing it, the oxygen absorbed must be ascertained, which may be done by Mohr's volumetric method—namely, by treating the lead with a weak standard solution of nitric acid. Wash the dissolved oxide of lead, and add a standard alkaline solution until it begins to produce turbidity. The quantity of oxide of lead is given by the difference in the standard of the nitric acid before and after its action on the lead.—*Chemical News*.

ANOTTA.—W. Stein has examined anotta, prepared by De Vry in Java, from fresh fruit by treatment with alkaline water and sponso-saturating with sulphuric acid, and finds that it gives an acid infusion containing a bitter principle, which may be removed by charcoal, and another substance which reduces the salts of copper. About one-half of the mass is fat and the residue is soluble in caustic and carbonated alkalies. Solutions thus formed, on the addition of acids, yield impure bitum, which appears to contain nitrogen in combination, and which, either alone, or after dissolving in alkali, and adding a small quantity of ammonia, gives off the odor of musk.

SULPHUROUS ACID IN SURGERY.—A writer in the *Medical Times and Gazette* has found sulphurous acid of great service when applied to wounds, preventing the formation of pus, and promoting the speedy union of divided parts. He considers it superior in efficacy to carbolic acid, and free from the objections attending the use of the latter. Sulphurous acid has long been known as a most useful agent for checking organic decomposition and fermentation. It is used constantly in wine cellars for that purpose, and this new application of it in surgery would seem to be somewhat analogous to those which are already familiar to chemists.

ESTIMATION OF LIME IN ANALYSIS.—M. Bonssingault has communicated to the French Academy a new method of finding the quantities of lime in analysis. It consists in precipitating the lime in the state of sulphate, which is decomposed either by a Bunsen gas blowpipe, or by one of Schlösing's furnaces; the sulphuric acid being vaporized and the lime remaining pure. In several experiments on the decomposition of earthy or metallic sulphates, M. Bonssingault remarked frequent anomalies,—the quantity of the base remaining, often being less than it ought to be. The fact is not easy to account for.

SULPHURIC ACID.—A new process for the production of sulphuric acid has been patented in France by MM. Tardani and De Susini. Its great recommendation is that it dispenses with the large leaden chambers. The sulphur or pyrites is burned in compressed air, and the sulphurous acid is first washed to free it from arsenic, etc., and is then brought into contact with the nitric vapor in a small leaden chamber of peculiar construction.

TIERS-ARGENT.—Taloureaux first made the beautiful alloy of aluminum and silver which has received this name. It consists of two parts of the former to one of the latter metal. It is now made perfectly homogeneous, and is easily fabricated. Its hardness and lightness are valuable qualities in table utensils. Spoons, forks, goblets, and salvers made of this material are rapidly coming into use in Paris.

LARGE LENS.—A lens, three feet in diameter, three inches thick in the center, and weighing 212 pounds, has recently been made for Mr. Parker, of London. In its focus small quantities of the most refractory metals are quickly fused, and completely dissipated into vapor, and the usually unyielding minerals are immediately vitrified.

Narrow Gauge Railroads.

We have several times alluded to the economy connected with the construction and operation of narrow gauge railways for mountain travel—more especially as feeders for main routes. Such roads have been used for many years in Sweden, and are also used to some extent in the mining regions of Great Britain. They are sometimes operated by locomotives, at others by horse-power. We have been permitted to make the following extracts from the note book of Mr. Attwood, M. E., giving some interesting facts with regard to a narrow gauge railway in use at Festiniog, North Wales, G. B.; which road is used for passengers. This road has a 2-foot gauge, with sharp curves, and is operated by locomotive engines. We quote:

"The difference in level between the terminus at Portmadoc and the mountain terminus at Dinas, is 700 feet, and the average gradient for 12½ miles, from that mountain terminus to the Trêth Mawr embankment near Portmadoc, is 1 in 92. The steepest gradient on the portion now used for passengers, is one in seventy-nine, and the steepest on which locomotive engines are employed, is one in sixty. Some of the curves are exceedingly sharp, having radii varying respectively from two chains to four chains. The maximum spur elevation allowed for the outer rail, on a curve of two chains, is 2½ inches for a speed of eight miles per hour.

The engines, though on a much smaller scale, are of a somewhat similar pattern to those which have been found so useful by contractors. The wheels are four in number, and are coupled together five feet apart, and are two feet in diameter. The cylinders which are placed outside the framing, are eight inches in diameter, with a length of stroke of twelve inches, and are only six inches above the rails. The maximum working pressure of steam, is 200 lbs. to the square inch. Water is carried in tanks surrounding the boilers, and coal in small four-wheeled tenders. The heaviest of these engines weighs 7½ tons, in working order, and the cost was \$4,500 each. The average load taken up at a speed of about ten miles per hour on the ascending journey, is fifty tons, including the weights of the carriages and trucks, but exclusive of the weights of the engine and tender. In fact, the actual performance of these engines, exclusive of considerable shunting, is to convey daily, on the up journey to Portmadoc, along the Trêth Mawr embankment, average loads of 260 tons of slates; all the empty slate trucks from Portmadoc, fifty tons of goods, 100 passengers, besides parcels, at an expenditure of seventeen cwt. of coal and coke for two engines, or about 75-100 pounds per ton per mile; the average ascending gradient for 12½ miles, being one in ninety-two, and there being a level portion for about three-quarters of a mile, near Portmadoc. The high pressure at which these engines are worked, combined with the small driving wheels, gives them a surprising amount of power for the size, and adapts them well for convenience in starting, and working at low speeds. The passenger carriages are necessarily of a different construction from those in ordinary use on railways, and are also low. Their dimensions are six feet six inches high in the middle above the rails, ten feet long, and six feet three inches wide, outside measurement. Each carriage has four wheels, one foot six inches in diameter, and four feet apart from center to center of axles. There is a longitudinal partition down the center, and the passengers sit back to back so as to avoid an overhanging weight outside the rails. The second and third class carriages cost \$500 each, and do not differ from the first class, except in the fittings, which cost \$600 each. The springs are volute, and the axle-boxes, which are under the seats, are easily lubricated on the removal of a small door opposite to them. The couplings are central, similar to the screw couplings in common use, are fifteen inches above the rails, and work upon volute springs. The buffers are also central, are 4½ inches above the couplings, and work against a curved spring two feet long.

The permanent way is now laid with rails weighing thirty pounds to the lineal yard, (or ten pounds to the foot,) and in lengths of eighteen feet and twenty-one feet. The rails are supported in cast iron chairs, which weigh thirteen pounds at the joints, and ten pounds each in the intermediate spaces. The sleepers are of larch timber, four feet six inches long, and

averaging ten inches by five inches. They are placed one foot six inches apart on each side of the joints of the rails, and two feet eight inches apart on the intermediate spaces.

MINERAL LAND TITLE.—The following official letter settles an interesting question in relation to this subject:

DEPARTMENT OF THE INTERIOR,
WASHINGTON, D. C., Jan. 31, 1868.
A. P. K. Safford, Esq., Surveyor General,
Nevada.—Sir:—In reply to your letter of the 7th inst., inquiring whether a person relocating an abandoned mine can receive the benefit of the \$1,000 of improvements made by a prior locator, in making application for a patent under the act of July 26, 1866, I have to state that the improvements placed upon a lot or tract of government land by a person who subsequently abandons the same, inure to the benefit of the next settler or occupant, whether the lands be mineral or agricultural, unless such improvements were removed by the prior occupant before the premises were relocated or reoccupied. But whether a relocater of an abandoned mine can make the improvements of a prior occupant the basis of his application for a patent under the second section of the act of July 26, 1866, is an entirely different question.

Such applicant is required to show that he has previously occupied and improved the vein or lode according to the local customs or rules of miners in the district where the same is situated, and that he has expended in actual labor and improvements thereon, an amount of not less than \$1,000.

To patent the mining lands to non-residents or other persons manifesting no intention to improve them or develop their mineral resources, would not only retard the settlement and prosperity of the new States and Territories, but would operate injuriously upon the general welfare. Hence the policy of the law in requiring reasonable evidence of intention to improve and develop the mine on the part of the applicant before investing him with an exclusive ownership to the same. Would such intention be evidenced by merely appropriating the labor and expenditures of another? It is believed not, and that such improvements would not bring the applicant within the spirit and intention of the law referred to. As the information has been requested, it is supposed, to assist you in the performance of your own duties under the act, the rule of the office in not furnishing opinions upon hypothetical cases has in this instance been departed from. Very respectfully, your obedient servant,

JOHN S. WILSON, Commissioner.

THE WAR IN IDAHO.—In the Mining Summary of this week, it will be seen that the Ida Elmore and Golden Chariot Cos. had fortified themselves in their respective mines, for the purpose of resisting the encroachments of each other. Late dispatches state that the parties came to a fight on the 26th of March, the Golden Chariot Company charging on the Ida Elmore under ground. In the charge, J. C. Holgate, of the Golden Chariot was killed, and Meyer Frank, of the Ida Elmore, was mortally wounded, and has since died. It appears that three companies are working the same ledge at different points—the New York, Ida Elmore and Golden Chariot—and that the partition wall between the Ida Elmore and Golden Chariot having been lately cut through, the fact was made apparent that such was the case. Each party determined not to be ousted, hence the fight. The ledge is undoubtedly one of the richest in Owyhee, and has already turned out considerable hullion. What the final result will be, can only be conjectured, but it is apparent that more blood will be shed before it is ended, as both parties have positions well fortified within gunshot of the two mines, with fifty men armed to the teeth on each side.

Since writing the above, the dispatches state that it is probable that the two parties will come to an understanding without further trouble.

LARGE GUN.—The Chilean gun now being built at Pittsburgh is 22½ feet in length, being two feet longer than the famous Rodman gun at Fort Hamilton, but of the same bore,—20 inches. Its greatest diameter is 5 feet 4 inches, its least 2 feet 9 inches.

New Patents and Inventions.

Under this heading we shall mention, from week to week, as occasion may demand, New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

56,047.—NEW STAMP MILL.—Alex. Herdlein, Egan Canon, Nevada:

What I claim is, 1st, the double-armed lever F, in combination with the stampers E, and cranks, or their equivalent devices, on the driving shaft C, conducted and operated as described.

2d. The hinged tappets, i, in combination with the adjustable heads C, levers F and stampers E, constructed and operating substantially as and for the purpose described and set forth.

This invention consists in a novel mode of elevating the stamps, which is done by double-armed levers instead of the common lever, or by an ordinary cam attached to a revolving shaft. The long arms of these levers are about five times longer than their short arms. They are arranged in combination with the stamps, and with suitable works or eccentrics on the driving shaft, in such a manner that with the assistance of the double-armed levers, the operation of raising the stamper is greatly facilitated, and the number of blows of each stamper can be increased to almost any desired number per minute, without danger of having the levers come in contact with the descending tappets. The lift upon the stamper is very direct, but little friction being produced. The levers hold the stamps and disengage therefrom by a very ingenious arrangement, much resembling that which lifts the hammer of a pile-driver. The long end of the levers connect by suitable rods with cranks or eccentrics on the driving shaft. The model can be seen at this office.

75,254.—IMPROVEMENT IN BOAT-DETACHING BLOCKS.—Nelson B. Adams, San Francisco, Cal.:

What I claim is, in combination with a block, the jaws EE, with the long arms FF, the short levers HH, with shoulders an, forming a knee-joint, the operating-lever J, having its fulcrum at G, and pivoted to the knee-joint I, the whole constructed, combined, and operating as a detaching apparatus, substantially as and for the purposes herein described.

This invention relates to that class of mechanism known as boat-detaching apparatus; and consists, first, in an improved device for detaching; and, secondly, in so combining it with the block as to make it applicable to any apparatus in which it is necessary to detach promptly. The detaching apparatus at both ends of the boat is so arranged that levers may be operated either at the word of command, by two men; or they may be so connected as to be both moved simultaneously by one man, and a boat thus safely lowered from the davits,—even when under headway at sea, in either smooth or rough water.

RECENT INVENTIONS.

A BOOT STRETCHER.—Perry Veitch, of this city, has invented what he calls a boot stretcher, the object of which is to stretch a hoot in any desired part, so as to accommodate an unusually shaped foot, or one which may be afflicted with tender parts, with corns, etc., without exerting pressure on the shank which tends to break it down or throw it unnecessarily out of shape. This object is accomplished by constructing a last in two sections, divided midway between the toe and instep. The two sections are separated or drawn together by a set screw; a false instep is also operated similarly. The toe of the last is covered with a piece of metal, which, as well as the false instep, is pierced with holes into which the stems of huttons or rounded metal pieces are placed in order to stretch any part of the boot to accommodate corns, etc. The invention must prove a very useful one, as by constructing the last in this manner the shape of the boot is retained, while the tender portions of the foot are accommodated, and an easy and perfect fitting boot is the result. While by the old method of inserting a common last and "stuffing up" the part desired to be enlarged and rubbing and pounding in order to enlarge any particular part, the entire shape and contour of the boot is destroyed, causing it in a short time to spread out, and look unshapely, and per-

haps "run down at the heel," owing to the breaking down of the counters.

DRY CULTIVATOR—IMPORTANT AGRICULTURAL INVENTION.—Messrs. Webster Bros., of Stockton, are interested in and have the control of a new invention, application for a patent on which is now pending at Washington, and which has been especially devised for breaking up and preparing *dry adobe soil*. It is confidently expected that this will prove a very important agricultural invention; as by its use farmers in California who occupy naturally dry adobe land, will be able to cultivate it almost as readily as when it has been properly prepared by natural moisture. Good crops may also be secured in seasons of drought, which so frequently occur in this State, and during which it has heretofore been found absolutely impracticable to cultivate much land, that in ordinary seasons readily yields to the common plow. We expect soon to be able to illustrate this invention and describe it in full to our readers. In the meantime, Webster Bros. will furnish any information which may be desired by those interested.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

ISLAIS CREEK NAVIGATION Co.—March 28th. Capital stock, \$2,000,000; 20,000 shares, \$100 each. Trustees: Henry E. Green, John W. Shaw, Samuel Crim, John Treat and Levi P. Peck.

WOMEN'S COÖPERATIVE Co.—March 28th. Capital stock, \$30,000; 3,000 shares, \$10 each. Trustees: Mrs. B. C. Whitin, Mrs. J. R. Brandon, Mrs. R. B. Swain, Mrs. E. K. Howes, Mrs. E. T. Schenck, Mrs. W. W. Stow, Mrs. B. E. Babcock, Mrs. W. M. Smith, Mrs. W. Wright, Mrs. J. A. Drinkhouse, Mrs. E. Burke, Mrs. J. Lightner, Mrs. T. N. Machin, Mrs. R. B. Clements and Mrs. D. Wooster.

SAN FRANCISCO STAMM, 'No. 83, UNITED ORDER OF REDMEN.—April 2d. Trustees: H. A. Siegfried, S. Kellner and A. B. Lewis.

OAKLAND WATER FRONT Co.—April 2d. Capital stock, \$3,000,000; 50,000 shares, \$100 each. Trustees: Edward R. Carpenter, Lloyd Tevis, Horace W. Carpenter, Samuel Merritt, John B. Felton and Leland Stanford.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Elder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1868. 10v16 3m

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. DRS. BEERS & JESSUP, corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 16v14-1f

Miners, Visitors to mining districts, R. R. EMPLOYEES, and TRAVELERS generally, should insure against all Accidents in the Traveler's Life and Accident Insurance Company of Hartford before leaving the city.

WM. MACDONALD & CO., Gen'l Agents,
7v15 3p 121 Montgomery St., opp. Occidental Hotel.

Accidents.

The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accidents; \$3 to \$50 per week paid the assured in case of injury preventing the prosecution of his business; \$500 to \$10,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required. WM. MACDONALD & CO., Gen'l Agents,
121 Montgomery st., San Francisco,
Opposite Occidental Hotel.

2v16 3m

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board

SAN FRANCISCO, SATURDAY MORNING,
April 4, 1886.

CITY STOCKS.

Since our last reference, there has been a considerable improvement in city shares. Spring Valley Water advanced to \$65, closing at \$64. The usual dividend is payable on the 10th. California Steam Navigation stock rose to 72@71½ per cent. Merchants' Mutual Marine Ins. Company will disburse a dividend of one per cent. on its capital stock on the 10th instant. North Beach and Mission Railroad paid the first dividend (½ per cent.) in six months on the 1st inst. National Insurance was in the market at \$71.

MINING SHARE MARKET.

During the week the mining share market maintained the marked activity noted for some time, and the excitement consequent upon the rapid rise of the various descriptions of stock has been intense. A heavy business has been done for Virginia account, and orders from the East and elsewhere come to hand quite freely. The increasing volume of business done during the first three months of the present year attest the growing importance of our Stock Exchange.

Mining and milling operations, after considerable interruption during the winter months, in consequence of the bad condition of the roads and the inclement weather, have been generally resumed in the vicinity of the Comstock lode. Indeed, a very general activity prevails throughout that entire district—the work of exploration and extraction, while being pushed with considerable vigor on the mother lode, have also been extended to quite a number of outside mines, some of them lying several miles away from it. Thus we find the Sacramento mine, situated on Cedar Hill—a high eminence one and a half miles north-west of Virginia City—extensively developed and profitably worked some five or six years ago, having lately become the property of the California Bank, has been reopened, and is to be worked systematically and vigorously hereafter, a contract tract having been let for the extraction of a large quantity of ore. Numerous other lodes in this hill, several of which have been efficiently explored to demonstrate their value, will also be reopened and worked the coming summer. The Occidental mine, lying more than a mile to the east of the main Comstock lode, has now been worked steadily for more than a year, with results nearly as good as have been obtained from the average Comstock ores. The Lady Bryan, situated nearly four miles east of the Comstock, has also for several months past been turning out ore of about two-thirds the value of that from the Gould & Curry mine; while work is about to be resumed on many of the small but rich auriferous veins about Devil's Gate and at other points along the belt of country lying between Virginia and Carson river.

Many of these mines were opened at an early day, attempts having been made to work their ores, but the great cost of reduction at that time absorbing all the product, caused them to be afterwards abandoned. At present rates, however, many of them can no doubt be made to pay well, thereby opening a new field for labor and adding materially to the bullion product of the district.

As the quartz in the lodes on Cedar Hill and in the Devil's Gate district contains but little silver, it is worked for the gold alone, the apparatus and methods employed in working it being those used in the quartz mills of California, the cost of which is much less than where pan amalgamation is resorted to.

In the mines along the Comstock lode proper, there have been no important changes to note during the last quarter, other than such as have marked its develop-

ment from the first, and as may be expected to occur in all masterly veins. The yield of bullion from the productive portion of this lode has for the quarter just ended been about equal to that of corresponding periods in other years, having been considerably curtailed, as is the case in all extremely inclement winters, in consequence of the bad condition of the roads and the stormy weather.

IMPERIAL—has been somewhat more active under better prices, rising from \$263 to \$295, receding to \$270, and closing at \$277.50.

All work upon the Imperial-Empire shaft and the progress of the drifts from the lower level are now watched with great interest by the speculator in stocks that will be effected by the development through this large and well constructed work. At latest dates the drift had been carried in upwards of forty feet from the 900 level, and on the evening of the 30th ult. the separate drift for the vein was commenced. The bullion receipts for March foot up \$39,761.15, with another clean-up to hear from.

SAVAGE—has been unusually active for some time past, and during the past week advanced to \$173.50, receded to \$167, then sold at \$173@167.50, and closed at \$171. During the week ending March 28th, 1,683 tons were extracted, valued at \$36.32 per ton, against 1,095 tons, valued at \$34.27, extracted in the previous week. The north mine on the third station yielded 967 tons against 603 the previous week.

CROWN POINT—advanced from \$2,200 to \$2,340, declined to \$2,010, and at the close sold at \$2,120. Telegraphic advices state that the drift is in seventy-eight feet from the 800 station, and nineteen feet west of the winze from the 700 level, which is now ninety-five feet in depth. This winze is not running in as good ore at present as previously reported. The faces of all the flows going south on the 700 level are looking well.

KENTUCK—has been less active than usual, advancing from \$422.50 to \$435, then selling at \$400, and closing yesterday at \$420. We understand that this mine is looking well throughout, and the prospects for continuous dividends for months to come are very fair. The shaft is about being carried to a further depth of 400 feet. At present the yield is about seventy-five tons per day, which is said to average from \$45 to \$55 per ton. For March account the bullion receipts add up \$47,600.

CHOLLAR-POTOSI—was in request at an advance, rising from \$215 to \$277, and closing at \$268. For week ending March 26th, the ore product amounted to 238 tons, against 249½ the previous week.

HALE & NORCROSS—sold to a moderate extent at \$2,350@2,550, rose to \$2,760, and at the close sold at \$2,700.

AMADOR—sold to a limited extent, realizing \$305. It is reported that a dividend of \$12 per share is likely to be disbursed on Monday, the 6th instant. The receipts of bullion in March aggregate nearly \$53,000.

LADY BRYAN—sold to a large extent during the period under review, rapidly advancing from \$23 to \$48, and closing at \$46. The bullion product for March is about \$20,000, the ore yielding about \$25 to the ton. Good ore is found on the 200 level, and the prospects seem to be very fair.

OVERMAN—increased in activity toward the close of the week, opening at \$181, rising to \$230, and closing at \$225. Since our last report, bullion amounting to \$14,670 has been received at the office in this city.

GOULD & CURRY—advanced from \$630 to \$680, declined to \$650, and closed at \$640. YELLOW JACKET improved to \$1,510, dropped to \$1,400, and at the close realized \$1,410. BELCHER rose from \$365 to \$400, receded to \$387.50, and closed at \$380.

BULLION was in marked request, rapidly rising from \$80 to \$160, dropping to \$85, improving to \$112, and closing at \$105. Work was resumed in the lower drifts on the first instant. ALFA also took a rapid upward stride from \$84 to \$105, then sold at \$90, and closed at \$92.50. EXOQUEER sold largely at enhanced rates, opening at \$52, jumping to \$95, declining to \$70, and at the close selling at \$82.

DANEY—sold to a larger amount than usual, within a range of \$28@19, closing at \$21. An assessment of \$3 per share, or \$12 per foot, was levied on this stock on the 2d instant. GOLD HILL QUARTZ rose from \$95 to \$130, closing at \$127. The ore reduced for March account amounted to 426 tons, showing a yield of \$8,166. EMPIRE advanced to \$325, closing at \$320.

OPHIUM—was in better request, advancing from \$225 to \$275, then selling at \$239, and at the close realizing \$270. SEGREGATED BELCHER was largely dealt in, rising from \$19.50 to \$29, and closing at \$28. SIERRA NEVADA also showed increased activity, selling within a range of \$24@32, and closing at \$26. CONFIDENCE, inactive for some months, came into the market quite freely, rising from \$80 to \$130, and closing at \$110. CONSOLIDATED GOLD HILL M. Co. came into market yesterday morning, selling at \$40, but in the afternoon \$150 was bid. UNITED STATES was also placed on the market, selling at \$23. These mines are located in the Gold Hill District, on the Comstock lode.

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the Mining and Scientific Press and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and Date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Amador Co., dividend, \$6 per share.....	Payable Jan 10	April 13—April 30
Altaville, March 15, \$1.....	April 13—April 30	
Belcher B. & A., Vir., Nev., March 13, \$8.33.....	April 13—May 4	
Belcher, Vir., Nev., March 13, \$5.....	April 13—May 4	
Black led., Lander Co., Nev., Mar. 23, \$10.....	May 1—May 18	
Bullion, March 5, \$15.....	Payable immediately	
Confidence, Storey Co., Nev., Mar. 23, \$17.....	April 30—May 20	
Crown Point, Gold Hill, Nev., Special Meeting May 4		
Campo Seco, Calaveras Co., Jan. 23, \$2.....	April 7—April 23	
Chilomena, Mexico, March 24, \$3.....	April 24—May 11	
Chuk M., Nevada, March 16, \$1.60.....	May 12—July 6	
Cole, Storey Co., Nev., Feb. 4, \$5.....	March 25—April 18	
Cherokee Flat B. G., Butte Co., Feb. 21, \$5.....	March 23—April 7	
Chollar Potosi, Storey Co., Feb. 10, \$50.....	March 17—April 6	
Crown Point, Nev., dividend \$30.....	Payable May 15	
Danev, Lyon Co., Nev., April 2, \$3.....	May 6—May 25	
Empire M. & N., Nev., dividend \$6.....	Payable May 15	
Folsom St. & Ft. R., March 10, \$5.....	April 11—April 27	
Focus M. & L., Amador Co., Feb. 10, \$10.....	March 23—April 27	
Gold Hill, Storey Co., Nev., March 13, \$20.....	April 11—May 8	
Golden Rule, Tuolumne Co., Nev., Special Meeting, Feb. 13		
Great Central, Arizona, Feb. 15, \$1.....	March 23—April 14	
Gold Hill Q. M. & M.—dividend, \$7 50.....	Payable Dec 16	
Hale & Norcross.....	Stockholders' Meeting April 30	
Houset Miner, Lander Co., March 25, \$10.....	May 1—May 18	
Hovey Gravel, Nevada Co., Feb. 23, \$1.....	April 2—April 20	
Humboldt Canal, Humboldt, Feb. 10, \$5.....	March 18—April 11	
I. X. L., Alpine Co., Feb. 13, \$1.50.....	March 28—April 15	
Imperial, Virginia, Nev., div. \$10.....	Payable July 15	
Jo Lane, Lander Co., Nev., March 25, \$10.....	May 1—May 18	
Julia, Storey Co., Nev., March 23, \$10.....	April 9—April 23	
Josephine Quicksilver, San Luis Obispo, div. \$2.....	July 6	
Kearney, Ilyo Co., Jan. 20, \$1.....	March 21—April 15	
Kentuck, div. \$5 per share.....	Payable March 14	
La Blanca, Sonora, Mex., March 27, \$2.50.....	April 30—May 16	
Lyon Hill, El Dorado Co., Feb. 22, \$2.....	March 27—April 13	
Neustra Senora, Mexico, March 27, \$1.60.....	April 23—May 18	
N. A. Wood Preserv., Nev., Feb. 22, \$2.50.....	April 9—April 23	
North Star, Lander Co., Nev., dividend.....	Payable Nov 25	
Morning Star, Alpine Co., Feb. 14, \$1.....	April 11—May 4	
Mohawk & Montreal, Nev. Co., Feb. 15, \$2.50.....	March 20—April 4	
Oxford Beta, Esmeralda, Nev., Feb. 10, \$50.....	March 18—April 6	
Rattlesnake, Yuha Co., March 16, \$2.....	April 20—May 6	
Richland, Lander Co., Nev., March 4, \$1.....	April 6	
Sierra, Genoa, Nev., Feb. 10, \$1.50.....	March 18—April 2	
S. F. & Castle Dome, Arizona, Feb. 26, \$10.....	March 30—April 21	
Sueor, Storey Co., Feb. 10, \$6.....	March 16—April 11	
Suñado, Silver City, dividend.....	Payable Feb 15	
Sierra Nev., Storey Co., Nev., Feb. 6, \$10.....	Mar. 11—Mar. 31	
Savage, Virginia, Nev., dividend.....	Payable March 4	
Welch Co., Contra Costa Co., Jan. 22, \$3.....	March 17—April 7	
Yellow Jacket, Gold Hill, div. \$75 sh.....	Payable July 10	

* Those marked with an asterisk (*) are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, April 3, 1886.	
MISCELLANEOUS STOCKS.	Per cent.
United States 7 3/4 Bonds, June issue.....	77 7/8
Legal Tender Notes.....	72 7/8
California State Bonds, 1880.....	83 3/8
San Francisco City Bonds, 1880.....	102 1/8
San Francisco City Bonds, 1885.....	85
San Francisco City and County Bonds, 1885.....	84
San Francisco City Bonds, 1886.....	82 1/2
San Francisco City and Co. Bonds, 7s, 1882.....	84
San Francisco City and Co. Bonds, 7s, 1884.....	80 85
San Francisco City and Co. Bonds, 7s, 1885.....	80 85
San Francisco City and Co. Bonds, 7s, 1886.....	80 85
San Francisco City and Co. Bonds, 7s, 1887.....	80 85
San Francisco City and Co. Bonds, 7s, 1888.....	80 85
Sacramento City Bonds.....	21 27
Sacramento County Bonds.....	68 70
Stockton City Bonds.....	70 85
Yuha County Bonds, 1885.....	75 85
Yuha County Bonds, 1886.....	75 85
Yuha County Bonds, 1887.....	75 85
Yuha County Bonds, 1888.....	75 85
Yuha County Bonds, 1889.....	75 85
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Yuha County Bonds, 1894.....	75 85
Yuha County Bonds, 1895.....	75 85
Yuha County Bonds, 1896.....	75 85
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Yuha County Bonds, 1914.....	75 85
Yuha County Bonds, 1915.....	75 85
Yuha County Bonds, 1916.....	75 85
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Yuha County Bonds, 1993.....	75 85
Yuha County Bonds, 1994.....	75 85
Yuha County Bonds, 1995.....	75 85
Yuha County Bonds, 1996.....	75 85
Yuha County Bonds, 1997.....	75 85
Yuha County Bonds, 1998.....	75 85
Yuha County Bonds, 1999.....	75 85
Yuha County Bonds, 2000.....	75 85

GAS COMPANIES.

San Francisco Gas Co.	74	75
Sacramento Gas Co.	—	—

RAILROADS.

Sacramento Valley Railroad.....	40	45
San Francisco and San Jose Railroad.....	44	45
Central Railroad.....	60	61
North Beach and Mission Railroad.....	60	61
Front Street, Mission and Ocean Railroad.....	11	12

BANKING INSTITUTIONS.

California Loan and Savings Society.....	—	—
Bank of Pacific Accumulation Loan Society.....	90	100
The Bank of California.....	153	163

INSURANCE COMPANIES.

Fireman's Fund Insurance Co.....	85	86
Pacific Insurance Co.....	120	122
San Francisco Insurance Co.....	140	140
Merchants' Mutual Marine Insurance Co.....	480	480
California Insurance Co.....	1300	1300
Union Insurance Co.....	90	92 1/2
California Home Insurance Co.....	9	10
Home Mutual Insurance Co.....	77 1/2	80
Occidental Insurance Co.....	71	72
National Insurance Co.....	71	72

MINING STOCKS—WASHOE DISTRICT.

Alpha.....	90	92 1/2
Balmores American.....	—	—
Belcher.....	780	885
Bullion, G. H.....	100	105
Crown Point.....	2100	2160
Confidence.....	—	—
Chollar-Potosi.....	265	274 1/2
Quincy.....	24	24
Exchequer.....	80	82 1/2
Empire Hill and Mining Co.....	315	325
Gould & Curry.....	400	660
Gold Hill Quartz.....	125	135
Hale & Norcross.....	2500	2700
Kentuck.....	420	425
Imperial.....	270	275 1/2
Lady Bryan.....	45	47
Ophi.....	267	270
Overman.....	170	171
Savage.....	166	167
Sierra Nevada.....	26	28
Yellow Jacket.....	145	148 1/2
Golden Rule, California.....	10	12

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, April 3, 1886.	
Flour, Extra, 3 bbl.....	\$7.10 @ \$7.75
do, Superfine.....	6.55 @ 6.75
Corn Meal, 30 lb Bbl.....	3.00 @ 3.40
Wheat, 30 lb Bbl.....	2.40 @ 2.50
Oats, 30 lb Bbl.....	2.30 @ 2.45
Barley, 30 lb Bbl.....	2.40 @ 2.50
Beans, 30 lb Bbl.....	2.50 @ 2.60
Potatoes, 30 lb Bbl.....	1.25 @ 1.50
Hay, 30 lb Bbl.....	16.00 @ 22.00
Live Oak Wood, 30 lb Bbl.....	9.00 @ 10.00
Hogs, dressed, 30 lb Bbl.....	10.00 @ 11.00
Sheep, on foot.....	3.00 @ 4.00
Hogs, on foot.....	5.00 @ 7.00
Hogs, dressed, 30 lb Bbl.....	10.00 @ 12.00

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Markleville *Miner*, March 21st: About 28 ft. have been added to the lateral tunnel of the Monitor Co. during the past week.

The tunnel of the Pennsylvania Co. is in softer rock than usual, and more water is encountered.

A shaft 160 ft. long, 4x4, has been run to the open air from the tunnel of the Levathan Co.

Genuine black ore has been struck in the lower level of the Morning Star mine, similar to that found in the palmy days of the upper level.

Chronicle, March 21st: The Pittsburg Co. in Scandinavian Cañon, have struck a ledge 300 ft. from the mouth of the tunnel which shows good silver-bearing quartz.

The late storm necessitated a cessation of work in the Rippon tunnel, an avalanche and the drifting snow, carrying away the outside works and covering the mouth of the tunnel.

Amador County.

Ledger, March 28th: The last fortnight's clean up at the Oneida mill, fully met the expectation of its owners. During the run but two-thirds of the stamps were kept in operation, and the gross product of the gold was over \$10,000. Now that there is a prospect of good weather, work will be pushed more vigorously than ever before.

For some days, Messrs. Tripp, Skinner and two Chicanos have been working a vein of rock in French Gulch, south of Butte Mountain, and Tuesday last sent us a sample of the metal they obtain, which upon examination, was pronounced to be silver. We took the button sent us to Mr. Reichling, assayer in this place, and after a thorough test, it proved to be silver, with a very small quantity of gold contained in it. The button weighed, before assaying, 17 grains, and was the production of one ounce of the rock. In assaying it lost two grains—leaving its weight 15 grains. At this rate the rock will yield over \$1,200 to the ton. The ledge at present, is six ft. in width.

The Casco mine, better known as the Old Marlette claim, having passed into the hands of parties in San Francisco, is being worked vigorously and systematically. They have now reached a depth of 200 ft., run a level south 100 ft., and are taking out large quantities of good rock. The ledge here is about 7 ft. wide. The company have an 8-stamp water mill which is run at a trifling cost, thus enabling them to prospect the rock at a small cost.

The late unparalleled rains have greatly impeded quartz mining and entirely suspended work on some mines. The weather seems now settled, though some weeks will elapse before the surplus supply of water drains off sufficiently for advantageous working.

Dispatch, March 28th: Mr. White, an Italian who resides this side of Pine Grove on the New York Ranch road, has struck a rich placer mine in his garden, from which he has realized from \$10 to \$20 per day to the hand.

The company owning the Casco mine have contracted to have 1,000 tons of quartz hauled to their mill on the Mokelumne river, about one mile from their mine, at the rate of 50 cts. per ton.

Butte County.

Record, March 28th: We understand parties from below have purchased the Jordan mill and mine, for the sum of \$10,000. This mine is situated some six miles above Yankee Hill, and has heretofore yielded well. The purchaser is making preparations to work it in a thorough manner, and there is no doubt but that it will result profitably.

Calaveras County.

Chronicle, March 28th: Under the exhilarating influence of the pleasant weather we are now enjoying, miners have again commenced work upon their claims with energy. New and extensive operations in quartz are being inaugurated, and the coming season promises to be livelier than for several years preceding. The success which has attended the opening of the lode in Rich Gulch is having a very beneficial effect, giving encouragement to others to persevere. Gravel mining, in Chili Gulch, is being very successfully prosecuted. Brackett & Co. are erecting a mill on their claim for the purpose of crushing the cement, it being found impossible to extract the gold by the simple process of washing. They will be ready to commence operations in the course of two or three weeks. Messrs. Shaw, Albright, Ahnrot & Co. are hydraulic with good success. Stockton ridge is melting away before their combined

efforts like snow before the sun. Paul & Co., Martin & Co., Harkins & Co. are also busily engaged in taking out the shining ore. The Golden Gate Mining Co., we are informed, are getting excellent pay.

San Andreas *Register*, March 28th: We were shown, recently, some exceedingly rich quartz from the Ben Thorn claim. It resembles the rock from the far-famed Hayward mine of Amador, so closely that those who claim to be good judges pronounce it almost impossible to distinguish between the rock. It seems to be generally conceded that the Thorn claim is a perfect success, and that the extensions are equally as good. Tait and Gregory, on the south of Thorn, seem determined to push labor on their extension as soon as it is practicable; and the Mexicans, on the north, seem as equally bent on following the vein down. We have heard some talk of the erection of water-power arastras for working the rock from the lead.

In the meantime the claim of Captain Thorpe is yielding regularly good wages. He has kept his arastras in motion all the winter. The claim pays well, is easy of access and readily worked. We understand that he has had several offers for the mine from San Francisco capitalists.

The vein, running through what is called the Talaferro Hill, on the northeast side of the town, is to be worked this summer.

Quartz prospectors report rich indications in various directions around the town. A great many new leads will be worked in this vicinity this summer.

From every direction throughout our county the news and reports indicate prosperity; and the miners seem to be settling down to the conclusion that quartz claims will pay them for their labor, and that they are easily found and readily worked in old Calaveras.

Inyo County.

Virginia Enterprise, March 21st: We hear very good reports from Cerro Gordo. It appears that notwithstanding the severe winter, one or two furnaces have been kept constantly in operation. Some of the ore smelted has yielded as high as \$1,000 per ton. All interested in that district have the utmost confidence in the richness and permanence of the mines. They believe in the many ledge theory, and say they have a big rope fastened to a convenient tree in the camp with which they will hang the first man who "talks one ledge" to them. They expect, when they get their furnaces in operation this summer, to take out many tons of silver.

Kern County.

Havilah Courier, March 21st: The St. John mine, at a clean up some weeks since, obtained \$7,500 after a two weeks' run. The company obtained \$9,000 at the last clean up, after a fortnight's run. Hammel & Deuker are going to work energetically to develop the Burning Moscow. It prospects well. George Leeper has discovered a very rich lead in New El Dorado District. Operations are to be resumed by the Alpine Company on the Greenhorn mountain. Work will soon be commenced again on the Long Tom mine, under the superintendence of Joseph Woodworth, a veteran miner. Ellsworth's & DeLand's machinery has arrived. It is to be used working mines at Kernville.

Visalia Delta, March 25th: At Kernville, in Kern county, the principal mine is owned by two companies, Hutton & Co. and Ellsworth & De Land, which mine, prior to the great freshet, was yielding an average of \$25,000 per month; but owing to their mine being filled with surface water, they were compelled to suspend operations to a considerable extent, until such time as they can set their new steam hoisting works in operation, which will be completed about the first of April. At Saealand, Messrs. Taylor & Co. are doing an enormous business in the way of turning out bullion. J. R. Rodgers & Co. will also have a 20-stamp mill running in Sageland within the next thirty or forty days, when, it is confidently asserted, that those two mills of 30 stamps will produce more bullion than 100 stamps in any other district in the county.

Mariposa County.

Mail, March 23d: Mr. Phillips, at the Buchanan copper mine, is still pushing forward his enterprise, and is determined that his investments at that place shall not be a failure. He has a vast quantity of fine ore on hand, but in the present condition of the roads it is utterly impossible to ship it below. As soon as the roads are passable for teams, Mr. Phillips will ship a large amount of ore to some landing on the San Joaquin, where it will be sent by steamer to San Francisco.

Gazette, March 27th: The operation of pumping out the Washington mine, near Hornitos, has commenced. It is calculated

that about seven days will be required to finish it, then the crushing of the quartz will commence.

Nevada County.

Transcript, March 22d: The few days of pleasant weather have aroused the miners, and many claims will soon be in operation in localities where the snow is not deep enough to prevent them. Above the snow line, miners are only waiting for an opportunity to start in, and enterprises will be pushed forward with all vigor. The deep snows in the mountains will give the miners abundance of water, and many companies will be able to keep at work until late in the fall.

The Idaho Co., whose claim is the extension of the Eureka mine, near Grass Valley, have struck a rich ledge. This Co. has been at work several years and expended about \$30,000 in prospecting.

On Friday last, John Adams picked up a specimen of quartz gold in front of the Nevada Hose house, on Main street, worth \$2.50.

March 26th: The Pittsburg mine is looking first rate. The prospects are so encouraging that the company contemplate adding five more stamps to their mill next month, when the mill will consist of 15 stamps, and be capable of reducing a ton and a half of quartz per hour.

March 27th: The Merrimac mill has been purchased by a company owning a quartz ledge at Ragan Flat, near Cement Hill. It will be removed and put in running order upon the new ground at an early day.

March 28th: The American gravel claims at Sebastopol, owned by Swan & Co., are turning out "big money." After a run of twelve days the company cleaned up last week, taking out \$15,000.

Wm. M. Gwin (formerly Duke de, etc.), arrived at You Bet on Thursday last. He is looking after some mining claims in which he is interested at Chalk Bluff.

March 30th: Fred. Sennar, yesterday picked up a lump of float quartz in Wood's Ravine, which weighs about 1½ pounds, and is literally filled with rich flake gold. The corners were worn smooth by the action of water.

Grass Valley *National*, March 25th: The New York Hill Co. stopped their crushing operations a short time since for the purpose of adding additional crushing facilities. They will start up again in a few days, and with the large addition made, be enabled to crush the rock as fast as taken from their mine.

Operations will be resumed the coming week upon the Empire Co's mill and mine.

March 26th: About two years since, the croppings of a quartz ledge was struck by Mr. Rannels, while setting out some fruit trees on his lot on Winchester Hill. The rock taken out at the time was considered to be rich. Since that time, however, but little work has been done on it. A company of miners are about setting in to prospect the ledge, in which we hope they may be successful.

Gazette, March 31st: Richards & Co., owners of the mill, on Deer Creek, have just completed some extensive improvements—having almost rebuilt the mill. New batteries have been put in, in place of the old ones, and the old fashioned stamps and square wooden stems have given place to the improved and more convenient stamps and iron stems now in common use. The mill was started up yesterday, and will first crush a lot of some 200 tons from the Rising Star ledge. After completing their crushing the mill will be set at work on rock from the company's ledge—the Ural—which will supply enough to keep it in constant operation.

Parties interested in the mining ground on the Washington Ridge, immediately northeast of Nevada, and located on what is supposed to be the extension of the Nebraska channel, are taking measures to prove up the mineral character of the ground.

Grass Valley *Union*, March 29th: The Coe mine which has been lying idle for some time, is just now attracting the attention of its owners. Yesterday some beautifully rich rock was taken out of the old shaft, which created quite a stir of excitement in mining circles.

The Inkerman ledge, supposed to be an extension of the celebrated North Star lead, has been in course of prospecting for some time past. A crushing was had the other day from this ledge, and from the croppings ten loads of rock yielded \$100, or \$10 per load. Rock taken from the bottom of the shaft, 60 ft. in depth, yielded \$15 per ton in the crushing.

EXCELSIOR.—Grass Valley *National*, March 28th: The Meadow Lake denizens are luxuriating under a weight of 20 ft. of pure, spotless snow, and calculate to get a sight at the sun some time in the coming May.

Placer County.

Shirt Tail Cañon, so famed in early days for its richness, but lying idle for the past 10 years, (although held by a party of 12 men), is likely soon to yield up its treasures quite equal to former times. The cañon is over 20,000 ft. long, and has been the receptacle for all the tailings from the richest hills in Placer county during all this time,—the washings from Brushy Cañon, Yankee Jims, Iowa Hill, Wisconsin and Smith's Hill, together with all the mines on that side of the Divide emptying into it, for a distance of 15 or 20 miles,—the result is that the tailings are now from 10 to 50 ft. deep, all of which are thoroughly impregnated with quicksilver, carrying more or less gold, and all ready for working, while all the water needed runs through the cañon after leaving the other claims. Thus water and quicksilver are free to work with, while for all time to come the mines above are furnishing material that must pay as long as the mines are worked.

Recently Mr. D. M. Hosmer, in connection with a few other gentlemen, have purchased the remaining interest, and are about commencing to flume the cañon and wash all the dirt. They are commencing about a mile below the lead, while preparing an immense flume at the foot of the cañon, where there is a fall of some 60 ft., with a good fall all the way up. Competent judges think that the claim will pay an average of at least \$10 per day to the land, and as the company will put on 50 men, as soon as the water permits, if the above initial estimate is correct, they will realize at least \$150,000 the coming year. There is no doubt but that the claim is among the richest gravel tailing claims in the State.

Auburn *Stars and Stripes*, March 26th: John Walgreen, the gentleman who discovered the celebrated Good Friday lead near Ophir, last fall, located a claim 110 ft. from the Good Friday, and developed a vein of quartz five inches wide and very rich in free gold. Owing to the unfavorable weather of past winter, Mr. Walgreen has only been able to get out five tons of quartz, which he had crushed at Schnabel's mill, near Newcastle. The yield was at the rate of 14½ ozs. per ton, or about \$1,200. There is more rock in the vicinity equally as good.

Jos. McLaughlin, while strolling around near Ophir, last Friday, observed a quartz boulder projecting from the ground, and out of curiosity, stooped down and pried it out. The operation disclosed a chunk of gold thickly studded with quartz, which upon being crushed in a mortar, yielded upwards of \$300.

Dutch Flat *Enquirer*, March 28th: Staple Bros. are meeting with good success in the Waukegan claim.

On Tuesday, the pipe which is used to convey water through the cuts above town burst and caused about 150 ft. of the pipe to collapse with the force of the air. It caused a temporary suspension of work in some of the claims which depended on the pipe for their supply of water.

Auburn *Herald*, March 28th: The contest between the Ophir and Good Friday Cos. has been amicably settled. The Ophir Co. pays the Good Friday \$3,500, and allows the Good Friday boys to have all the rock that is now out, supposed to contain at least \$2,000.

The Gold Run correspondent says: The miners are most of them at work—none but those interested know upon what terms.

Plumas County.

Quincy *National*, March 14th: The miners in Argentina district, are busy at work and doing well. Heath & Co. are taking out big pay in the old Bethel claims. Kniseley & Co. are running their quartz mill regularly, with good results.

The miners of Hungarian Hill have been snowed up most of the winter, and no work has been done except in the tunnels. Scurr & Hersey are running a bedrock tunnel for the purpose of prospecting a large gravel deposit. They are under ground some 330 ft., and expect to strike gravel in running 100 ft. more. Kelly, Moser & Co. will commence work in their claim as soon as the water comes in piping quantities. They have a very rich claim, and will roll out the slugs in abundance. Nick. Hartley is getting ready for action.

From Butterfly Valley, we have the following items: Maxwell, Anderson & Co. have struck diggings at this place. It seems that the lower end of Little Butterfly Valley is a gravel deposit, and with plenty of water, would profitably employ a large number of men. John Ball has about completed his ditch to this place, and will soon make some developments. Cashman & Co. have struck good prospects on High Bar opposite the mouth of Butterfly Creek. They intend to bring in the water from Plumas Creek, which puts in above Black Hawk, on the opposite side. From the prospecting that

has been done within the last few months, it is believed that most of the bars from Black Hawk down for two miles, if properly worked, will pay good wages in both coarse and fine gold. All the bars can be commanded by a ditch taken out of the river at the falls above Black Hawk. Black Hawk is still rich, and another claim is to be opened this summer.

San Bernardino County.

Guardian, March 14th: We understand the mining claims of Mr. Davis, on Lytle Creek, will hereafter be worked under the superintendence of Mr. David Bowman of Contra Costa county. Mr. Bowman is an old experienced miner, and will introduce to this locality several new and important features in placer mining, which will greatly facilitate the operation of extracting the precious ore.

Sierra County.

Downville Messenger, March 7th: The Independence Mill at Sierra Buttes was destroyed by three successive snow slides, on the 3d inst. It will require \$25,000 to put the mill in good order again.

Last Wednesday the Keystone Mill met the same fate that the Independence Mill met.

The misunderstanding between the locators and purchasers of the disputed stock in the Good Hope quartz claim has been amicably settled.

Siskiyou County.

Yreka Union, March 21st: We learn that Pool & Co. have got into the channel in their claim on the flat, and are taking out good pay. Success on the part of Pool & Co. will stimulate a great many to start in to open claims on the same flat. A new era of prosperity is about to dawn on Scott Bar.

Yuba County.

The Brown's Valley correspondent of the *Marysville Appeal* of March 24th says: In the Pennsylvania claim, incline No. 1, the lower levels 8, 9 and 10 are still under water, and any attempt to free them from it would be useless for the present, as the upper pumps can scarcely keep it down at its present level. Fortunately the upper levels 5 and 6, and incline No. 2, furnish more than the necessary supply of good quartz for the 16 stamps of the company. The company are now saving a large quantity of sulphurets, and several loads of them are ready for shipment to the Eureka Reduction Works at Grass Valley. The Rattlesnake claims also had all the water they could take care of, but it became no real impediment to the working and developing of the mine. The company are pushing on their drifts and shafts with great vigor, and seem to be in good spirits. They have now two oblique pay chimneys, about one hundred feet from each other, and will begin crushing as soon as their 10 stamps are in order. It is hoped they will be ready to crush on or before the 15th of April. The company will test this week the new Giant powder in one of their levels. In the Dannebrog claims the water also greatly interfered with the opening works of the company. Their prospects are still encouraging, and their mill will again be started within a short time. The Jefferson Co. continue to prospect, under the direction of their Supt. The Sweet Vengeance is now ready to resume work as soon as the weather will permit it.

ARIZONA.

Miner, March 7th: The Badger, is the name of a recently discovered ledge in Big Bug district.

We saw, the other day, a piece of rock from the Patanka lode, in which the veriest ignoramus could detect lots of the pure plata. This lode is situated a few hundred yards south of the Sterling lode, in Hassayampa quartz mining district. We are told that the ledge crops out for several hundred yards.

J. B. Slack, the owner of the Gross lode, informs us that it is his intention, as soon as the weather moderates in the mountains, to commence work upon the Gross, in anticipation of the running of the Bully Bueno mill, which, it is expected will be set to work in May or June. The Gross is very rich in free gold, and we sincerely hope that sulphurets will not come in for some time, at least.

The last clean up at Lewis & Winning's claim, yielded \$10 per day to the hand. A piece weighing over \$10 was recently picked up by them.

About two miles below this place, Anderson & Co. are working a bar of Big Bug Creek, and we are assured that they are making good wages.

A party of Coloradans are prospecting a long gulch that puts into the creek from the north, below the Mexican gulch, and are getting excellent prospects. They have worked through the cement.

In the vicinity of the mill, two or three

companies were at work, with what success we could not learn.

The last run made by Little & Taylor at Lower Lynx Creek, yielded over \$10 a day to the hand. We saw a lot of the gold brought to town by them (some fifteen ounces) which was nearly retorted, and looked as though it were worth over \$17 to the ounce.

Many Mexicans are working in gulches emptying into Lynx Creek, below Little & Taylor's diggings, on the south side of the creek.

Placer and quartz mining are being carried on in Walker district.

Ranchmen from Kirkland Valley inform us that in the foothills close to the creek, there are ravines that they know will pay if rightly worked. A lot of Mexicans a long time ago, worked in these gulches, and made fair wages, although they had to pack the dirt to the creek to wash it.

A party just arrived from Wickenburg give the following report concerning the mines in that vicinity: Wickenburg & Smith are working a claim on the Vulture lode, west of the Vulture Co's claim. The Wickenburg 5-stamp mill had been running for several days previous to the time the party left. A clean up was being made on Sunday morning, and at the time the party left Wickenburg, 100 ounces of gold had been secured. The rock taken out of the claim is said to be lousy with gold.

The Vulture Co's 20-stamp mill is constantly employed crushing ore, which, we are told, pays first rate.

COLORADO.

Georgetown Miner, March 12th: Garrott, Martine & Co., during the past week, made a run of 2½ tons of ore from the Wm. B. Aster lode. The yield from this ore was 498.25 ozs. of silver, worth in coin valuation, \$497.95. The assay of the crushed ore was \$215.19 per ton, and the loss from this assay was only 16 per cent. Development of the Aster lode was commenced last spring. It is situated near the summit of Republican Mountain, and a trail of considerable length had to be constructed, in order to get the ore to the mill. From the silver extracted from this and a previous run of five tons, the company owning the mine have more than paid all the costs of opening the lode, mining, packing ore and milling.

Messrs. M. B. Case and sons are opening a newly discovered lode on Republican Mountain. It is situated upon the north side of the gulch about 300 feet above the Cuckoo lode. The shaft on this new lode is down about 12 ft. and shows a crevice six feet wide between permanent walls. The mineral is sulphurets of silver, blue and green carbonates of copper with a small show of galena.

The Knickerbocker mill, at Empire, has temporarily stopped running.

A lot of Hise ore has been taken to the smelting works for reduction.

Messrs. Scott & Packard have resumed work on the east shaft of the Nuckolls lode.

We learn that Mr. Herrick will start up the smelting works the coming week.

Mr. Geo. Hickcox has made a new discovery of a silver vein, in Gilson Gulch, which bids fair to rival the famous Franklin lode. The ore assays \$400 to the ton.

The workmen in the Smith & Parmelee mine have struck a very fine vein of iron 30 in. in width and running the entire length of the company's property.

DACOTAH.

Sweetwater Mines, March 4th: It is reported that rich placer diggings have been found on the head waters of the Wind River, and also in the Big Horn mountains.

The shaft on the Atlantic lode is 70 ft. deep, and shows a crevice of 20 ft.; the ore is rich. A shaft of about ten ft. on the Austin City lode, displays a vein of 4½ ft.

On the Misouri lode is a shaft of ten ft., showing a vein of about five ft. The ore assays from \$60 to \$100 per ton. Ore from the Flora Temple lode assays \$45 to the ton; and from the Almira lode, from \$25 to \$90 per ton. The crevices are five ft. in width. On the Illinois lode is a 15 ft. shaft, and a three ft. vein; and the ore assays \$55 per ton.

IDAHO.

Owyhee Avalanche, March 14th: The parties owning the Ida Elmore and Golden Chariot mine have finally come to the conclusion "to fight it out on that line," and accordingly the fight has commenced in earnest. The partition wall between the two working parties has recently been broken through, disclosing the fact that the two mines or claims, were on one and the same lead. The combatants have fortified themselves in the slopes and drifts, and both parties seem determined to hold their "grip." The Ida Elmore party are preparing hose by which to eject hot steam and water upon their antagonists. About 40 shots were exchanged on Thursday.

The rich strike in the Oro Fino is all that fancy painted it.

In the ore house at the Golden Chariot mine, this week, we observed some of the richest ore that we have ever seen. There is both silver and gold in it in large quantities—pure native silver, held together, as it were, by leaves and threads of gold. Went down into and through the mine, and in different places therein saw ore so rich that the gold and silver could plainly be seen by the light of the candle which we carried. The mine will still continue to turn out Golden Chariot bricks.

A tunnel 150 ft. in length is now completed on the Woodstock mine. It taps the main shaft at the bottom, 75 ft. from the surface. In the north shaft the vein is over two ft. wide, and of such a character that if worked properly should pay from \$200 to \$300 per ton.

The Ida Elmore yields richer ore than ever. It is hauled to the mill as fast as it is taken out. Saw a quantity of quartz on the dump this week, all spotted with silver and in much of it gold was also discernible.

Stoping is going on between the upper and lower drifts in the Potosi mine, and ore of immense richness is being taken out, richer than was ever before found in the mine. On the dump we noticed about twenty tons of quartz, that if properly worked, should turn out quite a snug little fortune in itself. The ore contains considerable gold, but is chiefly remarkable for its richness in silver, in the form of black sulphurets. In some of it, also, can be seen pure native silver, in some instances beautifully crystallized.

World, March 14th: Mr. Geo. A. Dunn continues to work his hydraulic claim on Benum Hill, across Elk Creek, day and night, despite unfavorable weather. Active mining will soon be resumed in every mining camp in the Basin.

A correspondent of the *Montana Post*, writing from the Salmon River mines says: Claim holders are already complaining of there being a scarcity of labor in the country, the scarcity being general throughout the Basin. Offers have been made of \$7 per day with assurance of steady employment all summer, (and from the tenor of his letter we would judge that from 500 to 1,000 men can find employment in that section at wages not less than \$6 per day.—Eds. Press.)

MONTANA.

Post, March 7th: Hugh, Duncan & Co., have excellent prospects for a good summer's work. They will put in a flume and sink a shaft at the head of their drift as soon as the weather permits.

Nowlan & Weary, received per Wells, Fargo & Co's express, yesterday, from the Esler furnace at Argenta, 115 pounds of silver bullion.

The two pieces of retort from the first clean up on Atlantic Cable lode, which arrived in our city on Wednesday last, was the finest lot of lead retort which has as yet been brought to our city, or probably turned out in our Territory. The retort amounted to \$9,216.49, and assayed .942 fine. It was the result of nine days running for the 20-stamp mill recently put up on the lead by Messrs. Nowlan & Plaisted.

Quite an excitement has been created during the past week, by reports of gulch diggings eight miles from the Muscleshell. The 30-stamp mill of the Philadelphia Mining Co., and the 24-stamp mill of the I. X. L. Co. cleaned up, on Saturday last, after one week's run on rock from the Union lead. The coin value of the retort from each mill is as follows: Union mill, \$4,268.67; the I. X. L. mill \$4,475.71, making a total of \$8,744.38. The retort of the Union mill exceeded that of the I. X. L., by over 30 ounces, but the latter was about \$3 to the ounce finer.

Good prospects have been found in Rams-Horn gulch, recently, near Prof. Mape's mill. The party sinking on the claim took out ten cents to the paul the way through the gravel, which is four ft. deep. The diggings are shallow, the gulch about twelve miles long and plenty of water.

Same of March 14th: Chas. Rumley, who has just arrived from Phillipsburg, says that lively times may be expected at Flint Creek this season. He saw specimens from the Bugher-Rumley lead on exhibition at the office of Charles Sears, which eclipsed any silver bearing rock in the Territory. One brick in the store of P. H. Ren, on Bridge street, weighs 111 46-100 ounces, .957 fine, and is valued at \$137.90.

Daney's Bar, situated on the Missouri River, at the mouth of the Prickly Pear, has been partially prospected with good promise of success; as high as five cents to the pan having been obtained.

Mr. Creigh, of the Union City mills, yesterday deposited a 90-ounce brick, currency value \$2,031.55, with Messrs. Nowlan &

Weary, bankers. The pocket on the Oro Cache, from which the mill has recently been crushing, is nearly exhausted, but another pocket, apparently much larger, has been opened up, and the mine is still looking very favorable for good returns.

We notice at Nowlan & Weary's, a brick, the product of Alameda rock crushed in Mitchell's arastras, and assayed by Bohm & Aub, Helena. Its weight is 45 ounces; contains gold, \$96.74; silver, \$51.78; total, \$148.25; and is .987 fine. The result is from 8½ tons of ore.

We understand that work is to be immediately resumed on the water ditch to El Dorado Bar, and that it is the intention to have the water on the bar by the 1st of June. Some prospecting, which has recently been done on the bar, has served to raise the hopes of every one connected with the enterprise, of their ultimate and final success.

NEVADA.

Humboldt.

Unionville Register, March 14th: Gov. Fall has located the site for his new 20-stamp mill, and is now at work on the foundation. By the 15th of May, at the farthest, he will have his mill up and running.

Last week the Montezuma smelting works shipped 3,777 ounces of fine bullion. Value, \$4,800.

Same of March 21st: The Montezuma furnaces are in full blast.

The dam at the outlet of Humboldt Lake broke one day last week, overflowing the banks below. The dam was constructed by the Utica Bullion Co.

Reese River.

For some reason, to us unknown, we again find ourselves minus our usual mail from this locality.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, March 21st: Two fine bricks of bullion from the Lady Bryan mine may be seen at the Bank of California to-day. It is only a fortnight since we called attention to a couple of similar bricks. The value of the previous lot was over \$4,100, the value of this \$4,350.

Several mining companies in this vicinity, who have done but little work for the past three years, will resume operations this spring.

We have been shown some specimens of ore taken from the Lady Bryan mine, in which much leaf silver is visible.

The Lady Bryan Co. have just made a clean up of 2,600 ounces of bullion.

March 24th: The United States Co. yesterday commenced work upon a large new shaft which is intended to develop their east ledge. They hold eight locations, of from 800 to 2,000 ft. each, in the range of the present deep workings on the Comstock. Although the ledge is broken and mixed with foreign matter, there are throughout its whole width deposits of excellent ore—ore that assays as high as \$30 per ton. They have driven a tunnel into the mountain to a distance of 2,000 ft., with a branch 100 ft. in length, and have sunk upon leads cut by the tunnel two shafts, each 100 ft. in depth. Near the extreme end of the tunnel a very fine ledge was cut from which ore has been taken that assayed as high as \$42.

March 28th: Many of our miners and prospectors, who a week or two since contemplated going to Sweetwater, have given up the idea and will remain here and prospect our numerous promising outside leads, being encouraged in such resolution by the very cheering results obtained by the Occidental, Lady Bryan, Sacramento, and other companies now working upon outside leads.

Wells, Fargo & Co. shipped from their offices in this city and Gold Hill during the past week, 6,680 pounds of assayed bullion, valued at \$214,733.79.

March 29th: The average of fine assays of ore taken from the Lady Bryan yesterday, was \$59.23. Their assays run from \$25 to nearly \$150. The mine is looking better than ever before.

Gold Hill News, March 24th: The mines of Gold Hill are looking very finely, and their future prospects particularly good. This is the reason of the present elevation in our mining stocks.

OREGON.

The Umatilla Press says that Indians bring in gold quartz there from some neighboring region, of which they will not impart information.

IMPORTANT PATENT DECISION.—A Washington telegram dated March 31st, says: The contest which has been long pending in the Patent Office between the owner of the Goodyear Hard Rubber Patent and William Mullee, has been decided in favor of Mullee. After a desperate opposition, the patent is issued to him.

Mining and Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

O. W. M. SMITH. W. B. EWER. A. T. ORWY.
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WRITERS should be cautious about addressing correspondence relating to the business or interests of a firm to an individual member thereof, whose absence at the time might cause delay.

Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1886

Mr. C. T. Rancy is our duly authorized agent for Sacramento County. Nov. 23, 1887.

Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1887.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1887.

San Francisco:

Saturday Morning, April 4, 1886.

Notices to Correspondents.

ONE THAT WHISTLES AT THE PLOW, Marin County.—There exists no reason for supposing that the cycles of seasonal changes have varied since the American occupation of California. It has to be borne in recollection, that the bulk of this State possesses a climate more approaching the tropical, than the arctic; we can not therefore feel surprised that in the average of years, our spring and later winter months assume a very mild character. Interruptions to this general character may, however, be expected occasionally. It is a well known fact, among many of the temperate parts of the globe in higher latitudes than this State, for example the British Isles and central Germany, that when a week or ten days of remarkably fine weather occurs during the month of March, such is invariably followed by severe weather at the commencement of April. This circumstance has in England caused the first nine days of April to be called the horrowing days, and has given rise to the allegory "that March borrowed nine days from April, which March repaid with rain, hail and snow." In Ireland the legend takes the form that April weather, like the present, belongs to the days on which "the old cow died." A similar legend exists in Germany; the saying being based on the fact, that the fine weather of March having induced the owner to turn his animals from their winter's sheltering roof, they perished during the succeeding rigid weather which commonly follows such an event, during the succeeding month.

C. H. A., Lone Pine,—writes us as follows: "In answer to the common problem of the number of equidistant posts required to pass over or through a hill, usually considered to be equal, a friend asserts that it would require more to go over the hill, because the posts are radial to the earth's circumference; consequently they diverge from each other as they recede from the earth's center. Of course, he is right, theoretically at least; and it has occurred to me that the fact makes an appreciable difference in the mensuration of land at different altitudes. I find this difference to amount to about $2\frac{1}{2}$ feet in a mile, in two miles difference of altitude. Can you inform me if this matter has ever been considered in its bearing on surveying?" REPLY.—If the rails are fixed in length, it takes more posts to go over the hill,—not because the posts are radial to the earth's circumference, but because the hypothenuse of a right angled triangle is greater than the base, and the length of the base if applied to the hypothenuse will not reach the vertex. The absolute distance intercepted between any two radii is of course greater, the greater the distance from the center. But this cause would make only an infinitesimal difference in any ordinary hill; while the steepness of the slope from the cause given above, might make a very large difference within a small horizontal distance and with a hill of no great altitude. In geodetic surveying, the calculations are always referred to the center of the earth.

ASBESTUS.—We have received numerous answers to our inquiry about Asbestos. Our correspondents will hear more from us soon.

F. M. S.—In reference to the maple sugar tree, next week.

F. A. H., Forbestown.—Communication received. Will receive early attention.

The State Geological Survey.

Even the higgary appropriation of \$15,000 for settling up the affairs of the Geological Survey, which at the time of our last going to press was reported passed, was at the last moment killed in the Assembly. A resolution was adopted instructing the Governor and Lieut. Governor to take charge of the hooks, papers, maps and accounts. No regard was paid to the fact that work still in the hands of the printers and engravers, and for which bills are now coming in, is thus to be left unpaid for; nor to the fact that the Chief of the Survey had already advanced the amount of his salary for three years past, to meet expenses, trusting in good faith to the Legislature to return him his own again. It is a disgrace to the State that he should be so treated.

Prof. Whitney is unquestionably a scientific man. The plan of work which he had laid out for himself was undoubtedly an elaborate and thorough one. But he was unfortunate in falling among a people who had no distinct conception of what a geological survey is. They demanded something visible, instant, for their money; never duly considering the fact, that the Professor's scientific reputation demanded that any work which should go out from his hands, must be such as to stand the test of future criticism. A little more clap-trap in his composition might perhaps have made him more popular for a time; but in the end it would have been worse for him. A little more *bonhomie* might have pleased those who look only at the surface of things; but it would not have enhanced his merit as a scientist. Most men, whether with or without merit, are misjudged by the mass. Especially is this true of the solid, thorough man, who is not showy. The mechanical dexterity of the *surgeon*, as he slashes off a leg with an air, captivates and dazzles the popular eye,—and forthwith he is hoisted, perforce, to the highest pinnacle of medical fame;—but the subtle brain-workings of the really accomplished *physician*,—by whose exquisite tact and discriminating judgment the knife is rendered unnecessary, and the limb saved,—do not thus impress the crowd, and so go for nothing.

A lot of red, green and yellow maps, purporting to exhibit the geological characters of different portions of the State, might perhaps have been issued by the Survey three years ago,—to astound and delight the natives; and they might perhaps have been correct in their general outline, and indeed in most points, within a score or two of miles; but that was not the kind of maps which the Survey understood that it was employed to make. A geological map must be based upon a correct topographical map, or it fails to be of any real value. If work thus loosely done had been offered to the people of California, the "long howl" of disapprobation which would by this time have greeted the ears of Prof. Whitney, would have been infinitely harder for him to hear, than the present ungracious and summary *squelching* of the whole affair.

It does not appear, so far as we know, that any proof exists, that the time of the Survey and the money of the State have been wasted. A large amount of material must have been collected. One would have supposed that the Legislature would have had the good sense to appoint an outside committee of experts to examine that material,—rather than a committee of men who confessedly knew nothing whatever of the subject. But the thing is done; and we fear that it will be long before another man who has any scientific reputation to lose, or any professional pride to be wounded, will offer his services to the State of California.

We shall again refer to this matter; giving in detail the present position of the work,—both as regards the progress which has been made, and its pecuniary condition.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

J. Arthur Phillips on Gold and Silver.

The recently published work of J. Arthur Phillips on "The Mining and Metallurgy of Gold and Silver," is designed, according to the author's preface, to "supply a want in our technical literature, which is very deficient in books treating of the mining and metallurgy of the precious metals." Both an examination of the book and the concurrent testimony of its numerous reviewers, justifies the conclusion that it is the most complete and useful work of the kind which has been written; in fact, it is the only work extant which even approximately answers its title. True, there is not much originality in the book, as it is chiefly a compilation from various sources—a bringing together in one volume a carefully prepared digest of about all that is known of the metallurgy of gold and silver. As such, it should be found in the possession of every miner and metallurgist in any way extensively engaged in the extraction of the precious metals. We are pleased to learn that it is thus rapidly finding its way into such hands throughout the Pacific Coast. It is not our present purpose to review this work; our object is simply to inform the readers of PRESS what the work is, so that those who have not seen it may judge for themselves as to the necessity or importance of procuring it.

The work consists of a large royal octavo volume of over 500 pages, beautifully printed and bound, and illustrated with eighty-four woodcuts and eight large plates, descriptive of mining machinery and mining operations as employed and carried on in the search for and extraction of the precious metals, in various parts of the world where they are found. It is divided into two nearly equal parts—devoted respectively to gold and silver.

The first part treats of gold, and commences with a brief description of its mode of occurrence and geological position. The author arrives therein at three important conclusions, derived from recent observations and experience. First, that "the most productive gold-bearing rocks are by no means confined to the Silurian period,"—according to the premature conclusions of Murchison, and most other modern geologists. The second is, that "aqueous agencies have been, and still are, actively at work in the formation of mineral deposits"—a matter, however, pretty generally admitted. The third, and most important is, "that gold ledges are not more liable than ordinary metalliferous veins to become impoverished in depth."

A very interesting though brief chapter is given on the "Gold Regions of the Old World." Then follows in succession, nine chapters under the following heads: Atlantic Gold Fields of the United States; Gold Fields of the Pacific Coast; Mexico, Central and North America; North American British Possessions; Gold Working in California and Australia; Vein Mining in California and Australia; Vein Mining in Hungary and Brazil; Assays of Auriferous Ores; Estimation of Gold Contained in Quartz, Refining, Assay of Gold Bullion, etc.

Part Second commences with a description of the mode of occurrence and geological position of silver; followed by an interesting chapter on the principal silver mines of the world. The author then proceeds to treat more fully upon the silver mines of North America, and of Central and South America. The balance of the work, nearly 200 pages, is devoted to the metallurgical treatment of silver ores, as follows:—Treatment of silver by amalgamation—by the patio process, by the harrel process, by the pan process, by solution and precipitation, by smelting; extraction of the precious metals from argentiferous and auriferous lead, which has been obtained by smelting; treatment of argentiferous galena at Pont-gibaud; smelting of silver ores in Mexico; assay of silver ores and bullion.

The above brief summary of the contents of the volume will convey to the reader, who has not seen it, a very fair idea of its subject matter. The work will be seen to cover the whole field of the mining and metallurgy of the precious metals, and supplies a want long felt in that branch of technical literature. It has its faults, but they are few and immaterial, and such as might readily be expected in a work comprising so large a range of thought and research, hastily compiled as this has been. The title may be too ambitious; but it does not pretend to be exhaustive. As an original contribution to science it may have little value—it makes no such assumption; but as a compilation of the observations of others it will be found very valuable. It is the best thing of the kind we have, and the only one which is at all general or comprehensive. For sale by H. H. Bancroft & Co., of this city.

MORE MINING MACHINERY FOR CENTRAL AMERICA.—Some three or four months since we noticed the fact that the English Mining Company, known as the Javali G. & S. M. Co. of the State of Grenada, in the Republic of Nicaragua, had ordered a 10-stamp mill from the Union Foundry in this city, preferring to obtain their machinery here, rather than from the English foundries, for the reason that our mechanics are better posted as to the character of machinery needed than English mechanics. We have now to state that the same company has ordered another mill of the same capacity from the same foundry. Wheeler pans with a Belcher settler and Blake's crusher will accompany the stamps. The whole will be driven by an 18-inch Tyler turbine wheel, with 62 feet fall. The order for this mill is unusually full and complete, calling for a general fitting out of everything necessary about a quartz mill,—such as cars for tramways, wheelbarrows, carts, pans, shovels, picks, retorts, quicksilver, and an assay furnace and general assortment of chemicals. Even the literary portion of an outfit was not forgotten; as copies of Kustel's book, J. Arthur Phillips' late work, Randall's Quartz Operator's Hand-book, a file of the MINING AND SCIENTIFIC PRESS, etc., etc., are included in the order. The Javali Company is bound that there shall be no failure at their mines from lack of the necessary appliances and guides for properly opening and working the same. May their success be equal to their liberality and enterprise.

THE CHINESE EMBASSY.—Hon. Anson Burlingame, Envoy Extraordinary and Minister Plenipotentiary from the Chinese Government to the Treaty Powers; Chin Tajen and Sun Tajen, Chinese Ministers; J. McLeary Brown, First Secretary of Legation; Monsieur E. de Champs, Second Secretary of Legation, six interpreters, two English, two French and two Russian; two writers, a native doctor and fifteen servants, arrived by the steamer *China* on Tuesday last. It is expected that the party will leave by the *Golden Age* on Monday.

ARMY AND NAVY TELEGRAPHING.—The systems of signaling and telegraphing adopted by government are now uniform in both our army and navy. The cadets at West Point and the midshipmen at Annapolis receive the same instructions, so that when they become officers in any contingency of land or naval service, they will be enabled to open and maintain communication, by codes of signaling and electric telegraphy identical in their operation.

RAILROAD IMPROVEMENTS.—The New York and New Haven Railroad Company is now making experiments in new inventions, giving a promise of success. New steel rails have been laid down. Baker's car-heater has been adopted, the new compartment cars are in use, and experiments are being made with a new magnetic signal.

The Stetefeldt Roasting Furnace.

We have recently heard, from various sources, favorable reports with regard to the effectiveness and economy of the Stetefeldt roasting furnace. It has been thus far used only upon silver ore, which it readily chloridizes as close as 87 to 91 per cent., and delivers the ore neither baked nor burned, and entirely free from lumps. The first thorough practical test to which it was submitted was at the Murphy mill, in Ophir Cañon, near Austin, Nevada.

This furnace is constructed on the shelf or terrace principle, which consists of an upright stack with shelves; the pulp being fed in at the top and slowly dropping from shelf to shelf, until it reaches the bottom. This principle has been employed, with various modification, in Germany, for many years, and has recently been introduced into California by Mr. Mosheimer, of this city, under whose direction several of these furnaces have been constructed within the past two years, and all, so far as we have learned, have given much better results than the ordinary reverberatory furnace. The plan of construction adopted by Mr. Mosheimer is a combination of the shelf with the reverberatory, and has been already fully described in the PRESS.

Mr. Stetefeldt's furnace entirely dispenses with the reverberatory attachment, but has a dust chamber connected with his stack, by which the very fine particles of ore and metal which are unavoidably carried up the flue by the draught, in every description of furnace, are supposed to be arrested, and saved. We give from the Reese River *Reveille*, the following description of this furnace:

The furnace built at the Twin River mill, which was designed simply for experimenting, consists of a plain shaft, 22 feet high, four feet square inside at the bottom, and three feet square at the top. The flames from the fire-places, which are built on opposite sides of the shaft, enter it three feet from the bottom. The roasted ore accumulates at the bottom. Near the upper end of the shaft are four flues, which unite into one horizontal flue connected with a small fire-place designed to roast the fine dust that escapes through the flues. This horizontal flue is connected with a perpendicular one leading down into the dust-chamber. This chamber covers an area of ten by eighteen feet, is ten feet high, and surmounted by an iron chimney two feet in diameter and thirty feet high. In the first experiments the machinery for feeding the pulp into the shaft consisted of fluted rollers revolving slowly in the pulp and shoving it through the slits of an iron plate which covered the top of the shaft. Although these rollers fed quite regularly they did not discharge the pulp in a proper form, but it entered the shaft in lumps which could not be penetrated by the heat in the few seconds in which it was falling to the bottom. Fine pulp has the peculiarity of sticking together like the drops of a liquid if thrown through the air, and does not separate and scatter like sand. The invention of the proper apparatus for feeding the pulp was now the main point to render the furnace perfect. After several partially successful trials, the right principle was deduced from the cohesive properties of the fine pulp, and machinery was constructed accordingly. The plan is very simple. A coarse sieve is moved between a fine sieve (through which the pulp is discharged into the furnace) and a hopper filled with pulp. As it is difficult to give a concise and particular description of machinery without the aid of a drawing, we will only remark that this machinery worked admirably, although a few slight improvements suggested themselves to Mr. Stetefeldt which will render the feeding apparatus absolutely perfect. For the fine sieve sheet iron plates, punched with holes from 1-16th to 1-20th of an inch in diameter, were used, and proved to be very durable. The coarse sieve was made of iron wire, screen with quarter inch holes.

The operation of the furnace is exceedingly simple. The salt is mixed with the ore on the dry kiln, and they are both crushed together. Not more than eight per cent. of Spaulding's salt (which contains only 63 per cent. of pure salt), or five per cent. of pure salt was used, while twelve per cent. of the same article was used in the reverberatory furnaces of the

Twin River mill. In a properly constructed furnace the pulp will be conveyed by machinery from the battery to the hopper, and the feeding will be done also by machine power. The firing of the furnace may be regulated by two observations; if the ore at the bottom of the shaft has a tendency to bake together the temperature is too high; and if the dense white smoke of hydrochloric acid which arises from the chimney diminishes considerably, it is too low. It was supposed by many who had examined the furnace that the chlorination of the pulp would be accomplished by lying at the bottom of the furnace. But the supposition is entirely erroneous, as every particle of the pulp is perfectly roasted as soon as it reaches the bottom. The operation of the furnace is unique in that nearly all the chlorides of the base metals are decomposed by the steam contained in the flame, and hydrochloric acid and oxides formed. For this reason the same ores will give finer bullion in amalgamating than they would if roasted in a reverberatory furnace.

Mr. Stetefeldt has obtained a patent for this furnace, and has brought it to its present state of perfection, only at great cost of time and money. According to the authority before us, this furnace accomplishes its work more thoroughly than any other in use in Nevada. The cost of the Stetefeldt furnace is set down at 30 per cent. less than a reverberatory; while the former is capable of doing several times as much work during a given time. As to its working economy the following comparative estimates are given:

Present cost of roasting sixteen tons of ore at the Twin River mill—eight reverberatory furnaces being used—

24 roasters at \$4 each.....	\$96 00
2 foremen at \$3 each.....	10 00
2 carmen at \$4 each.....	8 00
2 pulv. coolers at \$4 each.....	8 00
7 cords of wood at \$8 50 per cord.....	59 50
12 per cent. of salt at \$40 per ton.....	48 00
Material and repair of tools.....	12 00
Total cost.....	\$230 50

IN STETEFELDT FURNACE.	
2 men to overlook machinery.....	\$8 00
3 foremen at \$4 each.....	12 00
2 pulv. coolers at \$4 each.....	8 00
3 cords of wood at \$8 50 per cord.....	25 50
8 per cent. of salt at \$40 per ton.....	32 00
Sieve and tools.....	3 00
Total cost.....	\$107 70

These comparative estimates show a saving in roasting 16 tons of ore in the new chloridizing furnace over the reverberatory furnace of \$162.70. The cost of roasting in the former furnace is less than \$7 per ton; in the latter it exceeds \$16 per ton. The expense of roasting in the reverberatory furnace, when it is properly conducted to a good result, is not under the most favorable circumstances less than \$15 per ton. Increasing their number hardly lessens the expense per ton. On the other hand the inventor of the new furnace is prepared to show, that one possessing the capacity of 32 tons would not cost 25 per cent. more in construction than one-half the size, while the expense of roasting would be reduced to about \$5 per ton. These extraordinary results are entitled to the consideration of intelligent millmen everywhere.

EASTERN MACHINERY AT A DISCOUNT.—The Social and Steptoe Mining Co., of Egan Cañon, Nevada, (located almost directly upon the dividing line between that State and Utah Territory) ordered a 20-stamp mill from the East, some time last summer, which was transmitted overland. On its arrival at Salt Lake City, the mill portion was found to be entirely worthless, and the Superintendent decided to abandon it at that point. Nothing but the engine will be taken hence to the mine; entire new machinery for the mill will be ordered in this city. A heavy expense is thus entailed upon the company, which might have been saved by giving their order to a San Francisco foundry at first. Our Eastern friends will save much time and expense in putting their mines into operation by abandoning all idea of buying their machinery at the East. Not one mill in fifty that is sent to this coast from the East, is worth anything more on its arrival here than its value for old iron. It is high time this fact was more generally known and recognized.

MINING COMPANIES are referred to the card of H. H. Sheldon, M. E., in another column. Mr. S. has had large experience as a mining superintendent, and gives references of the highest character.

Contributed for Our Cabinet.

Under this heading we shall continue to mention and describe, according to merit, such specimens of ores, minerals, fossils, carbonates, etc., as may be presented, or forwarded to us by mail or express, prepaid. Each article will be numbered and placed in our cabinet, and forwarded with the name of the donor, and the claim or location from whence it came.

209, 210—Alexander Hestlin has contributed several samples of silver ore from the Social and Steptoe Co's mine, Egan Cañon, Nevada, located almost immediately upon the dividing line between that State and Utah Territory. The first numbered specimen is from a depth of about 200 feet, and consists mostly of silver sulphurets, more or less decomposed and stained with copper. The last numbered was taken out 100 feet deeper, is less decomposed, and shows free gold. The proportion of gold in this mine increases with its depth. The ore pays from \$100 to \$150 per ton, and is worked fully up to 75 per cent. of its assay value. A 5-stamp mill was erected on the mine some three years ago, which will be replaced this summer by a mill of 20 stamps, the machinery for which will be ordered in this city.

MEDICAL AUTHORITIES have announced that not less than one-fifth of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Massachusetts. His "Universal Neuralgia Pill" is pronounced on all hands, to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions twenty per cent. cheaper than ever before, and the very best articles in market. The store is located at 115 Sutter street, Lick House Block. 2v151r

NORTH AMERICA

Life Insurance Company.

Usual Restrictions on Occupation and Travel
ABOLISHED!

Policies of this Company are guaranteed by the State of New York, which is true of no other Company on this Coast.

The most Responsible and Liberal Company in the World!

J. A. EATON & CO.,

Managers Pacific Branch, 302 Montgomery st.
20v14n9p SAN FRANCISCO.

Pacific Chemical Works.

Sweet Spirits of Nitre.

Messrs. Falkenau & Hanks—Gents—Having carefully compared your Spirits of Nitro with Samples of Eastern manufacture I cheerfully testify to yours being fully equal to the best thereof. GEO. S. DUCKEY, Pharmacist, Chemist, cor. Fourth and Market sts.

We hereby certify having used during the last two months the Sweet Spirits of Nitro, now manufactured by Messrs. Falkenau & Hanks, of the Pacific Chemical Works of this city, and find the same to be a good and reliable article, and equal to any European or Eastern manufacture. J. C. LEFERE & Co., Apothecaries, Cor. Dupont and Washington sts.

Messrs. Falkenau & Hanks—Gents—1 have examined a bottle of Spirits of Nitro, handed me by you, and find it equal to the best imported. J. C. LEFERE & Co., 131 Montgomery St.

Messrs. Falkenau & Hanks—1 submitted to Chemical tests several samples of Sweet Spirits of Nitro, and found sample marked No. 1 in density and percentage of Nitro. Either equal to Powers & Weightman's 1 obtained from a wholesale house in this city. CHAS. H. ZEILE, Clay street, opposite Plaza.

Messrs. Falkenau & Hanks—Gents—1 have used your Sweet Spirits of Nitro for the last two months in my prescription store, and find it to be equal to any manufactured by others, even to Powers & Weightman's. J. C. MOODY, 102 Kearny st., and cor. Fourth and Mission.

Messrs. Falkenau & Hanks—Gents—1 have tested and used the Sweet Spirits of Nitro, prepared by you, and find it to be equal to Powers & Weightman's, or any other I have heretofore used. H. W. SCHMIDT, Cor. Sacramento and Kearny sts.

Messrs. Falkenau & Hanks—We have used your Sweet Spirits of Nitro, and find it equal to any we have used heretofore. A. McBOYLE & CO., Washington street, near Sansome.

Messrs. Falkenau & Hanks—We have received the Spirits of Nitro of your manufacture, and find it a good article. SUPPARDSON & CO., 619 Montgomery street, San Francisco.

R. F. RYAN,

Attorney and Counselor at Law,
Practices in all the Courts of this State, and in Nevada.
Office, Room No. 35, Metropolitan Block,
N. W. corner Montgomery and Washington streets, San Francisco. 1v161qr

To the Mining Public.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST twenty years as Superintendent for various Companies, working mines of Gold, Copper, and Argentiferous Galena, offers his services to examine and report upon mines and mineral property. Reports accompanied by Plans, Sections and other Drawings. Also would be willing to take the management of any legitimate mining enterprise. If necessary, satisfactory reference given. Address, 1v161qr H. H. SHELDON, Copperopolis, Cal.

Builders' Insurance Company—
OFFICE IN THE BUILDING OF THE
CALIFORNIA SAVINGS BANK, California
street, one door from Sansome street.
FIRE AND MARINE INSURANCE. 10v14n9pqr

KNICKERBOCKER

Life Insurance Company,

OF NEW YORK.

Assets, - - over \$3,000,000.

Number of Policies issued in 1867, 10,300.

Amount insured, - - \$31,375,671 00.

POLICIES ISSUED AT ONCE,

On receipt of Application at the San Francisco Branch Office, without referring to the Home Office at New York.

Policies Paid in Gold Coin or Greenbacks,
at the option of the person insuring.

[Extract from report of the Home Office, for Dec. 1867.]
"The Company's history for the past fifteen years shows favorably, and it stands today ranks 11 among first class Societies. It has carried out in good faith every contract made by it, never contesting a Southern claim during the war, while it is well known that many of our largest companies repudiated their Southern risks at the commencement of our National struggle, thereby increasing their assets. This honorable dealing of the Knickerbocker in the past, is a pledge of its future good faith."

Pacific Branch Office, 430 Montgomery Street,
San Francisco.

GEO. T. SHIPLEY, M. D., Manager.

Agents wanted through city and State, and Pacific Coast. 6v16-3m9p

PACIFIC

Rolling Mill and Forge Co.,

SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames.

HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL and FORGE CO., Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron. 9v14m9p

A Book for Every Miner and Scientific Man.

JUST PUBLISHED,

KUSTEL'S NEW WORK,
CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arsenurets, and Gold and Silver Ores generally.

Price, - - - \$7.50

A liberal discount to the Trade. For sale by the Booksellers

Sent to any part of the United States, postage paid,
on receipt of the price. Address,

DEWEY & CO., Publishers,
Office of the Mining and Scientific Press, 503 Clay street,
16v14r SAN FRANCISCO.

DUDGEON'S
PATENT

HYDRAULIC LIFTING-JACKS,

—AND—

OILER PUNCHES.

Eighty street, cor. Minna.

1v16-6m

DR. FONDA'S
San Francisco Eye Infirmary.

Permanently established for the treatment of all diseases of the Eye. Dr. F. was for seventeen years principal of the Lafayette (Ind.) Eye Infirmary. P. W. FONDA, M. D., Surgeon in Charge. Office, 402 Montgomery street, opposite Weil, Fargo & Co's. 4v15-1v3p

FINE STEAM ENGINE FOR SALE.

OF 40 TO 50 HORSE-POWER, NEARLY NEW.
Engine at the machine shop of

D. FORNESS,
No. 51 Beale street, between Market and Mission.
1v16-1m9p

Notice.

MR. RUSSELL, WHO CALLED ON US IN MAY, 1867,
in reference to an analysis, will hear something to his advantage, by addressing FALKENAU & HANKS,
2v16 619 Montgomery st., P. O. Box 1189, San Francisco

Machinists and Foundries.

PALMER, KNOX & CO.,

Golden State Iron Works,

Nos. 19, 21, 23 and 25 First Street,
SAN FRANCISCO.

MANUFACTURE ALL KINDS OF

MACHINERY,

TEAM ENGINES AND QUARTZ MILLS

DUNBAR'S IMPROVED

Self-Adjusting Piston Packing,

Requires no springs or screws; is always steam tight;
without excessive friction, and never
gets slack or leaky.

WHEELER & RANDALL'S

NEW GRINDER AND AMALGAMATOR
HEPBURN & PETERSON'S

AMALGAMATOR AND SEPARATOR,

Knox's Amalgamators,
WITH PALMER'S PATENT STEAM CHEST,Superior for working either GOLD OR SILVER ORES, and
is the only Amalgamator that has stood the test of seven
years' continual working.

Genuine White Iron Stamp Shoes and Dies

Having been engaged for the past ten years in quartz
mining, and being conversant with all the improvements,
either in Mining or Milling, we are prepared to furnish, at
the shortest notice, the most perfect machinery for reduc-
ing ores, or saving either gold or silver. 13v10y-afWILLAMETTE IRON WORKS,
PORTLAND, OREGON.

Steam Engines, Boilers,

SAW AND CRIST MILLS,

MINING MACHINERY, WROUGHT IRON SHUTTER
WORK, AND BLACKSMITHING IN GENERAL.

Corner North-First and E streets,

18v13-1v One block north of Couch's Wharf.

UNION IRON WORKS,
Sacramento.

WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

CROSS' PATENT BOILER FEEDER,

STEAM ENGINES, BOILERS,
And all kinds of Mining Machinery.Also, Hay and Wine Presses made and repaired
with neatness, durability and dispatch.

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old Cylinders, manufactured
to order.

Front Street, between N and O streets,

14v11 SACRAMENTO CITY

GLOBE

Foundry and Machine Shop,

STOCKTON, CAL.

KEEP, BLAKE & CO.,

MANUFACTURERS OF

Quartz, Saw and Grist Mill Irons, Steam
Engines, Horse Powers,Mining and Irrigating Pumps, Car Wheels, Derrick Irons,
Horse Fronts, Iron Fencing, Balcony Railings, etc.,
at San Francisco prices. Orders solicited

13v13-1y and promptly executed.

GEORGE T. PRACY,

MACHINE WORKS,

Nos 109 and 111 Mission street, between Main and Spear,
SAN FRANCISCO.

STEAM ENGINE, FLOUR AND SAW MILL

And Quartz Machinery, Printing Presses,

AND—

MACHINERY OF EVERY DESCRIPTION MADE AND
REPAIRED.

Special attention paid to Repairing. 13v14-3

SAN FRANCISCO

Foundry and Machine Works,

N. E. Cor. Fremont and Mission streets,

Manufacturers of

Marine and Stationary Engines
Quartz Machinery, Saw, Flour and Sugar Mills, Mining
Pumps, Hoisting Gear, Agricultural Implements, etc.

—ALSO—

Wine, Cider, Cotton and Tobacco Presses
of the latest improved Patterns.

STEAM ENGINES AND BOILERS,

Of all sizes, constantly on hand; Quartz Mill Shoes and
Dies warranted to be made of the best white iron.Dunbar's Improved Self-Adjusting Piston-
Packing, requires no springs or screws; is always steam-
tight; without excessive friction, and never gets slack or
leaky.MACHINERY OF ALL DESCRIPTIONS
Bought, sold, or exchanged. Best Cutting and Castings at
the lowest market rates.

6v11-1y DEVOL, DINSMORE & CO

LEWIS COFFEY,

J. S. HADSON

LEWIS COFFEY & RISDON,

Steam Boiler & Sheet Iron Works.

THE only exclusively Boiler Making establishment, on the
Pacific Coast owned and conducted by Practical Boiler
Makers. All orders for New Work and the repairing of Old
Work, executed as ordered, and warranted as to quality.Old Stand, corner of Bush and Market streets, opposite
Oriental Hotel, San Francisco.

Miners' Foundry

—AND—

MACHINE WORKS

Nos. 245 to 255 FIRST STREET,

San Francisco.

HOWLAND, ANGELL & KING,

PROPRIETORS.

Manufacturers of Machinery for

QUARTZ MILLS.

FLOUR MILLS.

SAW MILLS.

SUGAR MILLS.

POWDER MILLS.

PAPER MILLS

Steam Engines of all Kinds.

Amalgamators of all Kinds.

MINING PUMPS, HOISTING WORKS

OIL WELL TOOLS, ROCK BREAKERS,

—AND—

Machinery and Castings of all kinds, either

of Iron or Brass.

Boilers and Sheet Iron Work in all its

Branches.

Shoes and Dies of White Iron, manufactured
for and improved by us exclusively for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.Russia Iron Screws, of any degree of fineness.
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.

W. H. HOWLAND

E. T. KING,

H. B. ANGELL,

CYRUS PALMER.

13v14-qr

FULTON

Foundry and Iron Works.

WINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Moore's Grinder and Amalgamator, Brodie's

Improved Crusher, Mining Pumps,

Amalgamators, and all kinds

of Machinery.

N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco.

3-vy

BAURHYTE, McAFEE & SPIERS,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Fine or Tubular Boilers, with plain circular or spiral
courses. Upright Fine or Tubular Boilers, Locomotive and
Marine Boilers, and Wrought Iron Tanks of every de-
scription.Hydraulic Pipe supplied at reasonable rates. In or-
dering, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to
be used.Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in re-
pair with promptness.To Boiler Makers and Machinists in the
interior.—The firm is prepared to furnish estimates of
Boilers, supply new Heads, drilled and punched, and attend
to the selection and forwarding of Iron for Boilers, Pipes
and other purposes.Plans, Drawings and Specifications.—The firm
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their Inventions, giving them the ben-
efit of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their Inventions. 1v10t

J. NEWSHAM.

J. DINGWOOD.

SOUTH BEACH IRON WORKS,

Near corner of King and Third streets, San Francisco.

MARINE ENGINES,

AND ALL KINDS OF

MACHINERY FORGING.

All kinds of Ship-smithing and Mill work manufactured to
order. Jobbing of every description promptly attended to.
All work done guaranteed. 13v14-1y

CALIFORNIA

TOOL AND FILE FACTORY.

Blacksmith and Machine Shop.

No. 38 Fremont street, between Market and Mission, S. F.

Job Grinding and Polishing done at shortest notice.

Special premium awarded at the last State Fair, Sacra-
mento. 4v15-qr

J. WEICHHART.

LINCOLN IRON WORKS,

No. 51 Beale st., bet. Market and Mission.

D. & W. FOURNESS, Prop'rs.

STEAM ENGINES,

Flour and Sawmills, and MACHINERY of all descriptions

made and repaired at shortest notice.

Particular attention paid to repairing Reynolds' Cut-off
5v15qr

CALIFORNIA BRASS FOUNDRY.

No. 125 First street, opposite Miuna,

SAN FRANCISCO.

ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Buder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.

PRICES MODERATE. 13v13-1y

J. P. CALLAGHER,

J. R. WHEEL,

V. KINGWELL.

I. H. SMALL,
MACHINE SHOP,

BUILDER OF

Steam Engines, Sawmills, Mining Machinery,
Saw Arbors, Wood Cutting Machinery,
and Wood Planes.
Repairing of all kinds done with promptness and dispatch
Gears of all kinds cut at short notice, corner of
Market and Beale St. San Francisco. 6v15-3m

JAMES MACKEN,

COPPER SMITH

No. 226 Fremont st., bet. Howard & Folson.

All kinds of COPPER WORK done to order in the best
manner. Particular attention paid to Steamboat, Sugar
House and Distillery work.

Repairing promptly and neatly attended to. 13v11

To Foundrymen and Blacksmiths.

LUMP LEHIGH AND CUMBERLAND COAL, IN ANY
quantity, sacked and shipped to any part of the coun-
try, by
JAS. R. DOYLE, Coal Dealer,
415 and 416 Pacific street,
bet. Sansone and Montgomery,
San Francisco.

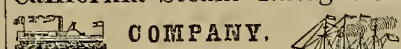
2v15-3m

Japanning!

EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS
of Hardware and Carriage work. Damaged goods re-
-paired. Sawing, Machining, and Ornamenting.
513 Fourth Street, between Bryant and Welch, San Fran-
cisco. 6v16-3m

N. A. BALL & CO., Prop'rs.

California Steam Navigation



Steamer CAPITAL.....CAPT. E. A. POOLE

" CHRYSOPOLIS.....CAPT. A. FOSTER.

" YOSEMITE.....CAPT. W. BROMLEY

" CORNELIA.....CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, Chico, and Red Bluff.Office of the Company, northeast corner of Front and
Jackson streets.

13v12

B. M. HARTSHORNE,

President.

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER.

Black Diamond, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 25 lb. kegs.Hunter's Rifle, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 25 lb. kegs.Pacific Mills River Shooting, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 25 lb. kegs.Pacific Mills Rifle, in 1 lb. canisters.
do do in 5 lb. canisters.
do do in 25 lb. kegs.Blasting and Mining Powder \$2 50 per keg.
Safety Fuse and Shot for sale by

HAYWARD & COLEMAN, Agents.

2v15-3m 414 Front street, San Francisco.

International Hotel,

JACKSON STREET,

BETWEEN MONTGOMERY AND KEARNY STS.,

SAN FRANCISCO, CAL.

THIS OLD ESTABLISHED HOUSE IS IN PERFECT
order for the accommodation of guests. Persons seek-
ing comfort and economy will find this the best Hotel in
the city to stop at. The beds are new and in good order,
and the Rooms well ventilated. The Table will always be
supplied with the best in the market.

Prices varying from \$1 50 to \$2 per day for

Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED

TO THE HOUSE.

Teams belonging to the House will be in attendance
at all the boats and cars to convey passengers to the House
FREE OF CHARGE, and to any part of the city for 50 cents

2v12 F. E. WEYCANT, Proprietor.

CARD.

THE UNDERSIGNED, SINCE DISPOSING OF HIS
Gallery on Montgomery street, has seldom been in the
street without being asked where the best photographs
were taken. Now, for the benefit of his friends and the
public generally, he would recommend them to go to the
COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY,
No. 523 Kearny street, now owned and occupied by Messrs.
HALSEY & SCRIPTURE. Both of these gentlemen are
professional photographic artists—one of them having
been in the business more than twenty years—and cannot
be surpassed by any one in the State.Persons wishing gallery in the city will do well to give
them a call. The above named gallery is one of the finest
and most convenient in San Francisco, it being situated on
the second floor, and its proprietors are the most accom-
modating and gentlemanly men in the business.

JAMES WISE, Portrait Painter.

N. B.—Prices as low as at any other Gallery in the city.

Solar Printing for the Trade.

Also Stereoscopic Views of California Scenery, at whole-
sale and retail, at the Cosmopolitan Art and Photographic
Gallery, No. 523 Kearny street.

HALSEY & SCRIPTURE.

7v16-3m Proprietors.

COOSE BAY COAL.

The Cleanest Burning and Most Economical

Fuel on the Coast.

Sold by all dealers in this city and Oakland.

EDWARD FLANAGAN,

Agent Coose Bay Coal Company.

7v16-3m No. 606 Battery street, near Jackson, S. F.

\$100 A MONTH SALARY WILL BE PAID FOR

Agents male or female, in a new, pleasant, per-
manent business. Full particulars free by return mail,
of sample retelling at \$4 50 for 500 cents. A. D. BOWMAN &
CO., No. 4 Broad street, New York.

(Clip out and return this notice.) 10v16-3m

THE NEW GAS LIGHT.—The American Gas
Light Journal translates from the Paris
Petite Presse of January 16th, the French
extacies over the new light. This is the ar-
rangement which we have already noticed
in former numbers of the PRESS; being es-
sentially the Drummond light with a piece
of magnesia instead of lime under the ig-
nited oxy-hydrogen jet. Manganate of soda
is used as the source of the oxygen; and it
is claimed that while it has heretofore cost
about four dollars per thousand cubic feet,
it can now be furnished for thirty-nine
cents. La Presse thus describes the manner
of producing the light:—"In the first place
a reverberatory furnace heating seven re-
torts having a capacity, each, of about 150
kilogrammes (330 lbs.) of the manganate of
soda. In addition to this, a boiler, a con-
denser, a steam engine, a blower, and two
gas-holders holding about 15 cubic metres
(530 cubic feet) each.

These items of apparatus are erected in
the vaults of the 'Assistance Publique' at
the Hotel de Ville, where any one can visit
them.

The steam is superheated to about 450
deg. (Centigrade, we presume—equal to
842° Fahr.), and then by a suitable arrange-
ment is suffered to enter the first retort.
Thus brought into contact with the super-
heated steam, the manganate of soda be-
comes decomposed, and relinquishes its
oxygen, which is swept off into the con-
denser by the steam. The condenser is full
of wet coke which condenses the watery va-
pors, and permits the oxygen to pass to the
gas-holder, ready for use.

When a retort has been stripped of oxy-
gen, manganese and soda remain behind.
The steam jet is arrested, and immediately
replaced by a current of cold air thrown
into the retort by a powerful blower driven
by the engine. Thus brought in contact
with the air, which, as we all know, con-
tains 21 per cent. of oxygen, the manganese
is again oxidized, and recombines with the
soda to form again the manganate of soda.
The same process may be renewed indefi-
nitely, the same substances always pro-
ducing oxygen.

By means of separate tubes, the oxygen
from the gas-holders in the vaults, and the
hydrogen from the ordinary gas mains are
led to the burner; they are brought into
contact at the point of lighting, and their
flame is directed against a piece of magnesia
which instantly throws out the magnificent
brilliance which all Paris has admired."

In remarking upon this new light, the
Gas Light Journal says that it is destined to
be a failure, notwithstanding the delight of
the excitable Parisians with it. It calls it
"this Drummond Redivivus,"—and says
that the very features which made its proto-
types useless for general purposes, are recog-
nizable in it. It would be liable to con-
stant derangement; and make a chemist as
necessary in every household as a cook.

UTILIZATION OF WASTE COAL.—A series
of experiments recently made by a Board of
Engineers, appointed by the Navy Depart-
ment to examine into the various methods
of employing anthracite and bituminous
coals as fuel, go to show that the large
amount of finely broken coal now wasted at
the mines in this country and in Europe,
could be profitably utilized. The pulveri-
zation of this coal might be made complete,
and it could be used with a forced blast
above the ordinary coal fire. The experi-
ments above alluded to, show that the effect
produced with pulverized coal exceeds
that with the same weight of lump coal by
from 20 to 30 per cent. Statistics show that
while the mines of Great Britain yield more
than 100,000,000 tons of marketable coal
per annum, about 30,000,000 tons more of
waste coal are left at the mines. The per-
centage of waste coal at the anthracite mines
of this country is somewhat less than at the
bituminous coal mines, yet it has been
estimated at about twenty-five per cent. of
the whole weight brought to the surface.
The utilization of this waste coal would vir-
tually add one-third more to the value of
the annual product of American mines, and
eventually cause a corresponding diminu-
tion of the prices paid by the consumer;
therefore it may be safely averred that no
improvement has been lately proposed
which compares in general importance with
that which would make available the waste
product of coal mines.

PRESERVE YOUR SIGHT.—Adopt specta-
cles suited to your eyes. C. Muller, Op-
tician, thoroughly understands his profes-
sion, 205 Montgomery street. *

PRACTICAL AS WELL AS THEORETICAL MINING ENGINEERS.—W. W. Kenrick writes thus to the *London Mining Journal*:—"I am of opinion that the profession of the mining engineer is the most difficult and responsible of the whole department of engineering, for in no other branch is there required such a combination of skill, perseverance, judgment, and personal courage; and, therefore, it is all the more necessary that we give our most serious attention to the subject of mining education. We are daily witnessing the failure of concerns which should by all reasonable calculations have proved successful: thousands of pounds are actually thrown away through inefficient mining.

Deficient ventilation, bad underground roads for conveyance of coal, improper methods of supporting the roof, and opening out the workings, the most injudicious division of labor, together with the want of order and system, may be met with at the present time to an astonishing extent in some mining districts of this country, to which causes are attributed in a great measure the accidents which are so frequently occurring, and the failure in a commercial point of view of the most promising concerns. It is the opinion of one of the most eminent mining engineers that "the speediest and most effective remedy we can suggest is that all responsible managers of mines be required by Government to obtain certificates of practical and theoretical competency for their situations before being allowed to enter upon them. Local boards of examiners could easily be established for this purpose; and it would be no difficult task to so combine the practical in examinations with the educational and scholastic as to preclude the possibility of any mere theorist obtaining a certificate, as in many instances through a mistaken notion of economy by proprietors, men are employed as responsible managers who are totally ignorant of the most elementary principles of mechanics, the laws of gas, the principle of the safety-lamp, the geometry of figures formed by faults and heaves, and the theory and accurate practice of surveying and leveling. To what source, therefore, are we mainly to look for such improvement as shall make mining a safe and profitable investment? To this I reply, the mining engineer himself, to whom it is just as important that mining should be a good investment, as it is to the capitalist whose money furnishes the needful appliances."

Smelter Wanted.

A WORKING MAN, CAPABLE OF TAKING CHARGE of one of the shifts in running a Blast Furnace, for reduction of Lead and Silver Ores. Address this office. 13v16trp

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FOR SALE—THE CONTROLLING INTEREST IN ONE of the best Gold and Silver Mines in the State of Nevada. The owners not having sufficient means to purchase the necessary machinery to work to advantage, will dispose of a portion of the mine at a bargain. Any one willing and able to embark in the enterprise, will be shown and probably convinced that it is no visionary scheme. The ledge will now pay more than the expense of working it, and is very rich, increasing in width at every foot in depth. For particulars apply at this office. 13v16-1m

Mining Secretary.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST five years as Secretary of various mining companies, feels fully competent to serve in that capacity. Any parties wishing to secure the services of a Secretary can be recommended on reasonable terms. Information given, and all necessary papers correctly made out. Having had a long experience in the purchasing of goods and machinery for miners, parties in the mines will find it to their advantage, where purchasing agents are employed, to send their orders to the undersigned.

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75,000 LBS. IMPORTED COPPERAS—SULPHATE of Iron—for sale in lots to suit, by
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Office Pacific Business College and Telegraphic Institute.

Mechanics' Institute Building, Post Street. [Exterior View.]

A. de LEO de LAGUNA.

[10v15-3m]

JAMES VINSONHALER.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.
Hamburg, by Hamburg mail—2 cents each.
Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.
Lunenburg, by Bremen mail—3 cents each.
Lunenburg, by Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Schleswig-Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.
Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.
Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.
Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—4 cents each.
Italy, by Bremen or Hamburg—5 cents each.
Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail via Marseilles—3 cents each, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen and Hamburg mails via Trieste—3 cents each, and 2 cents per ½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.
Hamburg, by Hamburg mail—1 cent per ounce.
Prussia, Austria and German States, by Bremen or Hamburg mail—1½ cent per ounce.
Lunenburg, by Bremen mail—1½ cent per ounce.
Lunenburg, by Hamburg mail—1½ cent per ounce, and 1½ cent per 1½ ounce.
Schleswig-Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.
Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.
Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.
Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per ½ ounce.
Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.
Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.
Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail by way of Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.
Austria, India and China, by Bremen or Hamburg mail, by way of Trieste—3½ cents per ounce, and 2 cents per ½ ounce.

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—OF—

NEVADA COUNTY, CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupations of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Chlorine and other processes; Geological Formation of the most noted mines in California, etc., etc.

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Price, \$5—For sale at the office of the Mining and Scientific Press, San Francisco. 13v16tf

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Gentlemen of almost every profession, who, within the last two years have graduated at my establishment, will bear testimony that from my instructions they have learned more in a few weeks than they ever expected to learn.

My charges are from \$50 to \$200.

Ores of every description assayed and worked
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ESTABLISHED

[MAY, 1866.]

VOLUME SIXTEEN

—OF THE—

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DEWEY & CO., Publishers.

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The MINING AND SCIENTIFIC PRESS is now thoroughly established, and enjoys one of the largest and most permanent subscription lists of any weekly journal on this coast. The individual character and reputation of its constant patrons throughout the entire coast is one of the best recommendations of its merits and value as a medium of intelligent progress and prosperity.

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What they are;
How Assayed;
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And How Worked;
With a Chapter on the
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By WM. BARSTOW, M. D.

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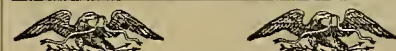
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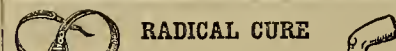


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On the 6th, 14th, 22d and 30th of every month.

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The following Steamships will be dispatched on dates as

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KONG, connecting at Yokohama with the steamer COSTA

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For Merchandise and Freight for New York and way

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"Best Best" Iron.

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—John Sedg.

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This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—Alta California.

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Prof. Laynes plunges at once "in medias res." He seizes a sentence (which is the unit in composition, whether written or spoken), divides it up before you; tears it to pieces before your eyes—or rather, we should say, neatly and skillfully dissects it—displays one by one its several parts; makes you thoroughly acquainted with each, in its complexity; and then shows you how to put them together again. A series of such experiments, increasing in complexity, so gradually that you do not feel the difficulty, and the thing is done; you are master of the subject.—Mining and Scientific Press.

Its design is to show that ideas can be so arranged as to increase their power; in short, to teach the mechanism of composition, eloquence and oratory. A desideratum long felt supplied.—S. F. Examiner.

This is an anecdote in which the occasions are rapidly multiplied, when educated men, and women, too, are called upon to express their views in writing, either for public or private inspection and criticism.—Stockton Independent.

The most eminent educators in California give it their hearty approval, and we concur.—Marquette Express.

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Address DEWEY & CO., Mining and Scientific Press, San Francisco.

New Mining Advertisements.

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the thirtieth day of February, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Richard Ingh...	31	40	\$6 00
Richard Ingh...	35	20	45 00
Richard Ingh...	36	20	30 00
Richard Ingh...	38	6	7 00
Gomer Evans...	278	12	18 01
Gomer Evans...	314	9 1/2	83
Gomer Evans...	325	9 1/2	125 00
John Richards...	42	5	7 50
John Richards...	43	5	7 50
John Richards...	44	5	7 50
John Richards...	45	5	7 50
John Richards...	46	5	7 50
John Richards...	47	5	7 50
John Richards...	48	5	7 50
John Richards...	49	5	7 50
John Richards...	50	5	7 50
John Richards...	51	5	7 50
John Richards...	52	5	7 50
John Richards...	53	5	7 50
John Richards...	54	5	7 50
John Richards...	55	5	7 50
John Richards...	56	5	7 50
John Richards...	57	5	7 50
John Richards...	58	5	7 50
John Richards...	59	5	7 50
John Richards...	60	5	7 50
John Richards...	61	5	7 50
John Richards...	62	5	7 50
John Richards...	63	5	7 50
John Richards...	64	5	7 50
John Richards...	65	5	7 50
John Richards...	66	5	7 50
John Richards...	67	5	7 50
John Richards...	68	5	7 50
John Richards...	69	5	7 50
John Richards...	70	5	7 50
John Richards...	71	5	7 50
John Richards...	72	5	7 50
John Richards...	73	5	7 50
John Richards...	74	5	7 50
John Richards...	75	5	7 50
John Richards...	76	5	7 50
John Richards...	77	5	7 50
John Richards...	78	5	7 50
John Richards...	79	5	7 50
John Richards...	80	5	7 50
John Richards...	81	5	7 50
John Richards...	82	5	7 50
John Richards...	83	5	7 50
John Richards...	84	5	7 50
John Richards...	85	5	7 50
John Richards...	86	5	7 50
John Richards...	87	5	7 50
John Richards...	88	5	7 50
John Richards...	89	5	7 50
John Richards...	90	5	7 50
John Richards...	91	5	7 50
John Richards...	92	5	7 50
John Richards...	93	5	7 50
John Richards...	94	5	7 50
John Richards...	95	5	7 50
John Richards...	96	5	7 50
John Richards...	97	5	7 50
John Richards...	98	5	7 50
John Richards...	99	5	7 50
John Richards...	100	5	7 50

And in accordance with law, and an order of the Board of Trustees, made on the thirtieth day of February, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., auctioneers, 413 Montgomery street, San Francisco, on Wednesday, the fifteenth day of April, 1883, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. ap1

Nuestra Señora de Guadalupe Silver Mining Company. Location of Works: Tayolilla, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1883, an assessment (No. 31) of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. PEPPER, at his office, No. 210 Post street, or to the Treasurer, A. H. WELLMAN, at his office, No. 637 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of April, 1883, shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of May, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, E. J. PEPPER, Secretary.

Office, No. 210 Post street, San Francisco. ap4

San Francisco and Castle Dome Mining Company. Location of Works: Castle Dome County, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-sixth day of February, 1883, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
S. B. Stoddard...	100	400	\$40 00
S. B. Stoddard...	101	400	40 00
S. B. Stoddard...	102	100	10 00
S. B. Stoddard...	103	25	2 50
S. B. Stoddard...	104	10	1 00
S. B. Stoddard...	105	10	1 00
S. B. Stoddard...	106	10	1 00
S. B. Stoddard...	107	10	1 00
S. B. Stoddard...	108	10	1 00
S. B. Stoddard...	109	10	1 00
S. B. Stoddard...	110	10	1 00
S. B. Stoddard...	111	10	1 00
S. B. Stoddard...	112	10	1 00
S. B. Stoddard...	113	10	1 00
S. B. Stoddard...	114	10	1 00
S. B. Stoddard...	115	10	1 00
S. B. Stoddard...	116	10	1 00
S. B. Stoddard...	117	10	1 00
S. B. Stoddard...	118	10	1 00
S. B. Stoddard...	119	10	1 00
S. B. Stoddard...	120	10	1 00
S. B. Stoddard...	121	10	1 00
S. B. Stoddard...	122	10	1 00
S. B. Stoddard...	123	10	1 00
S. B. Stoddard...	124	10	1 00
S. B. Stoddard...	125	10	1 00
S. B. Stoddard...	126	10	1 00
S. B. Stoddard...	127	10	1 00
S. B. Stoddard...	128	10	1 00
S. B. Stoddard...	129	10	1 00
S. B. Stoddard...	130	10	1 00
S. B. Stoddard...	131	10	1 00
S. B. Stoddard...	132	10	1 00
S. B. Stoddard...	133	10	1 00
S. B. Stoddard...	134	10	1 00
S. B. Stoddard...	135	10	1 00
S. B. Stoddard...	136	10	1 00
S. B. Stoddard...	137	10	1 00
S. B. Stoddard...	138	10	1 00
S. B. Stoddard...	139	10	1 00
S. B. Stoddard...	140	10	1 00
S. B. Stoddard...	141	10	1 00
S. B. Stoddard...	142	10	1 00
S. B. Stoddard...	143	10	1 00
S. B. Stoddard...	144	10	1 00
S. B. Stoddard...	145	10	1 00
S. B. Stoddard...	146	10	1 00
S. B. Stoddard...	147	10	1 00
S. B. Stoddard...	148	10	1 00
S. B. Stoddard...	149	10	1 00
S. B. Stoddard...	150	10	1 00
S. B. Stoddard...	151	10	1 00
S. B. Stoddard...	152	10	1 00
S. B. Stoddard...	153	10	1 00
S. B. Stoddard...	154	10	1 00
S. B. Stoddard...	155	10	1 00
S. B. Stoddard...	156	10	1 00
S. B. Stoddard...	157	10	1 00
S. B. Stoddard...	158	10	1 00
S. B. Stoddard...	159	10	1 00
S. B. Stoddard...	160	10	1 00
S. B. Stoddard...	161	10	1 00
S. B. Stoddard...	162	10	1 00
S. B. Stoddard...	163	10	1 00
S. B. Stoddard...	164	10	1 00
S. B. Stoddard...	165	10	1 00
S. B. Stoddard...	166	10	1 00
S. B. Stoddard...	167	10	1 00
S. B. Stoddard...	168	10	1 00
S. B. Stoddard...	169	10	1 00
S. B. Stoddard...	170	10	1 00
S. B. Stoddard...	171	10	1 00
S. B. Stoddard...	172	10	1 00
S. B. Stoddard...	173	10	1 00
S. B. Stoddard...	174	10	1 00
S. B. Stoddard...	175	10	1 00
S. B. Stoddard...	176	10	1 00
S. B. Stoddard...	177	10	1 00
S. B. Stoddard...	178	10	1 00
S. B. Stoddard...	179	10	1 00
S. B. Stoddard...	180	10	1 00
S. B. Stoddard...	181	10	1 00
S. B. Stoddard...	182	10	1 00
S. B. Stoddard...	183	10	1 00
S. B. Stoddard...	184	10	1 00
S. B. Stoddard...	185	10	1 00
S. B. Stoddard...	186	10	1 00
S. B. Stoddard...	187	10	1 00
S. B. Stoddard...	188	10	1 00
S. B. Stoddard...	189	10	1 00
S. B. Stoddard...	190	10	1 00
S. B. Stoddard...	191	10	1 00
S. B. Stoddard...	192	10	1 00
S. B. Stoddard...	193	10	1 00
S. B. Stoddard...	194	10	1 00
S. B. Stoddard...	195	10	1 00
S. B. Stoddard...	196	10	1 00
S. B. Stoddard...	197	10	1 00
S. B. Stoddard...	198	10	1 00
S. B. Stoddard...	199	10	1 00
S. B. Stoddard...	200	10	1 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-sixth day of February, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at their salesroom, No. 310 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-first day of April, 1883, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. R. SMITH, Secretary.
Office, Room No. 16 Stevenson's Block, Cor. Montgomery and California streets, San Francisco. ap4

Mining Notices—Continued.

Black Ledge Gold and Silver Mining Company. Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1883, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, D. H. CROWE, Secretary.

Office, 223 Clay street, San Francisco, Cal. mar28

Chalk Mountain Blue Gravel Company.—Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1883, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twelfth day of May, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of May, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, J. M. BUFFINGTON, Secretary.

Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar21

Chilpaneca Mining Company.—District of Cres, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of March, 1883, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of April, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees, JOHN F. LOHSE, Secretary.

Office, 318 California street, up stairs, San Francisco. mar28

Folsom Street and Fort Point Railroad and Tunnel Company. San Francisco, California.

Notice is hereby given, that at a meeting of the Board of Directors of said Company, held on the tenth day of March, 1883, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Cash-T. Fav, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the eleventh day of April, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-seventh day of April, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors, JOS. M. WOOD, Secretary.

Office, Room No. 16 southwest corner of Montgomery and California streets. mar14

Foggs Mill and Mining Company.—Location of Works: Amador County, Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the nineteenth day of February, 1883, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
G. D. Keeney...	5	40	\$40 00
G. D. Keeney...	16	20	20 00

And in accordance with law, and an order of the Board of Trustees, made on the nineteenth day of February, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 321 Front street, San Francisco, Cal., on Thursday, the ninth (9th) day of April, 1883, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN J. SCOTCHILLER, Secretary.
Office, No. 321 Front street, San Francisco. mar29

Great Central Mining Company.</

took full four hours. The results I obtained were very satisfactory in one respect, viz., extraction of the silver;—but not so good with the gold. Other gentlemen have done better than myself. I believe the process is excellent for silver,—and so it would be for gold, if the ores were calcined; but we wanted this. It was said the machine would decompose the sulphurets—(i. e. the chloride of sodium would),—without the aid of fire; such, however, was not the case in the trials I made, neither did I believe it would be. However, this apparatus is not very costly; the patentee asks \$5,000 for the patent license. There are several now being put up in Colorado and Nevada.

M. DU CHAILLU AND THE CANNIBALS.—The New York correspondent of the *Bulletin* says: "M. Du Chaillu continues to draw crowded audiences to his lectures. In his last Monsieur had much to say about his adventures in the cannibal country of Equatorial Africa, where human flesh is rated according to age and sex, women being considered the tenderest, and both sexes when young preferable to the old. The lecturer remarked upon the fear with which he was constantly beset while sojourning in this country lest he should become a victim. Especially would this fear come upon him in the presence of the women, who gazed upon him incessantly with longing eyes, ever seeming to be tempted to take a bite of his flesh without waiting for cookery. On one occasion he came suddenly upon a woman who appeared to be the last lingerer at a feast, and who, on seeing him, started off at full speed with the leg of a man under her arm."

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20.....10 cents.
Over \$20 and not exceeding \$50.....15 cents.
No fractions of cents to be introduced in an Order.
United States Treasury Notes, or National Bank Notes only received or paid.
To send over \$50, additional Orders must be obtained.
Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out:
No. Amount Date,, 186 ..

MONEY ORDER.

Required for the sum of \$..... Payable at
State of Payable to Residing at
State of Sent by
Residing at State of
Entered in Register:

Names of parties and places, and the sums, to be written in the plainest possible manner.

As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1867.

CALIFORNIA.

Office.	County.	Office.	County.
Amador	Placer	Napa City	Napa
Benicia	Solano	Nevada City	Nevada
Campanville	Yuba	Oakland	Alameda
Chico	Butte	Oroville	Butte
Columbia	Colusa	Petaluma	Sonoma
Colusa	Colusa	Placerville	El Dorado
Hawleyville	Sierra	Red Bluff	El Yuma
Utah Flat	Placer	Sacramento	Sherman
Eureka	Humboldt	San Rafael	Marin
Folsom City	Sacramento	San Francisco	San Francisco
Forest Hill	Placer	Santa Cruz	Santa Cruz
Georgetown	El Dorado	San Jose	Santa Clara
Gibsonville	Sierra	Santa Rosa	Sonoma
Grass Valley	Santa Clara	Shasta	Shasta
Halsburg	Sonoma	Sonoma	Tulame
Home Valley	Amador	Stockton	San Joaquin
Jackson	Amador	Suisun City	Solano
La Porte	Plumas	Susanville	Lassen
Los Angeles	Los Angeles	Yacaville	Solano
Marietta	Marietta	Vallejo	Solano
Maricopa	Maricopa	Visalia	Tulare
Maricopa	Maricopa	Watsonville	Santa Cruz
Marysville	Yuba	Weaverville	Trinity
Marysville	Contra Costa	Wilamington	Los Angeles
Mokelumne Hill	Calaveras	Yreka	Siskiyou
Monterey	Monterey		

NEVADA.

Office.	County.	Office.	County.
Virginia City	Storey	Austin	Lander
Carson	Ormsby	Aurora	Esmeralda

OREGON.

Office.	County.	Office.	County.
Albany	Union	La Grande	Union
Canyon City	Grant	Oregon City	Clackamas
Corvallis	Benton	Portland	Multnomah
Hallas	Polk	Roseburg	Douglas
Rugene City	Lane	Salem	Marion
Jacksonville	Jackson	The Dalles	Wasco
Lafayette	Yam Hill	Umatilla	Umatilla

IDAHO TERRITORY.

Office.	County.	Office.	County.
Boise City	Ada	Ruby City	Owyhee
Idaho City	Boise	Lewiston	Ney Perce

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena	Helena	Virginia City	Madison

WASHINGTON TERRITORY.

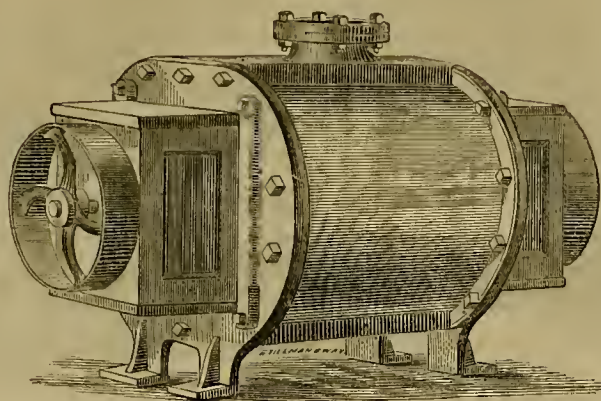
Office.	County.	Office.	County.
Olympia	Thurston	Vancouver	Clark
Stellacoom City	Pierce	Walla Walla	Walla Walla

Important to Californians.—Many inventors have lately had their claims for Patents seriously (and in some cases fatally) delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of honest agents, are now the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. The Mining and Scientific Press Patent Agency has strictly complied with the regulations of the Department, and properly filed all necessary papers as Claim Agents.

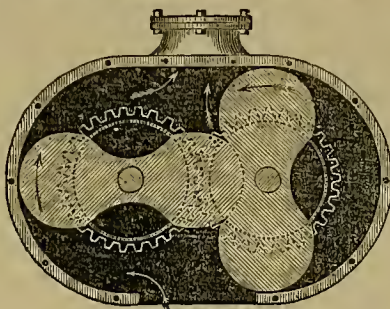
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

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FOR
Smelting,
Foundry,
Mining
and
Steamships.



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Than any Blower
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One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

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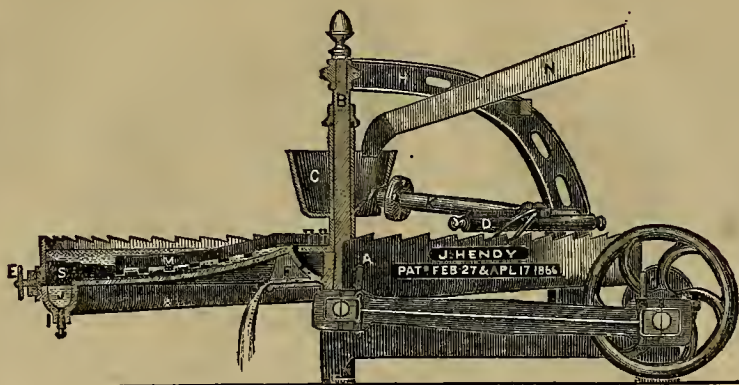
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S. W. LEE, Snpt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.
J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.
W. H. RODDA, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,
LOUIS JANIN, JR.
The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

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SAN FRANCISCO, SATURDAY, APRIL 11, 1868.

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Number 15.

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Cameron's Special Steam Pump.

The present illustration represents the Patent Steam Pump of Mr. A. S. Cameron & Co. of New York, and is styled by them the "Special Steam Pump," to distinguish it from the various other patterns of steam pumps which they are manufacturing. This pump is used for feeding boilers, elevating water, blowing air for draining mines, etc. For the last purpose it is used to a great extent among the coal mines in Pennsylvania. The makers are now building one with a 70-inch steam cylinder, and have increased their facilities for manufacturing by the recent purchase of the extensive estab-

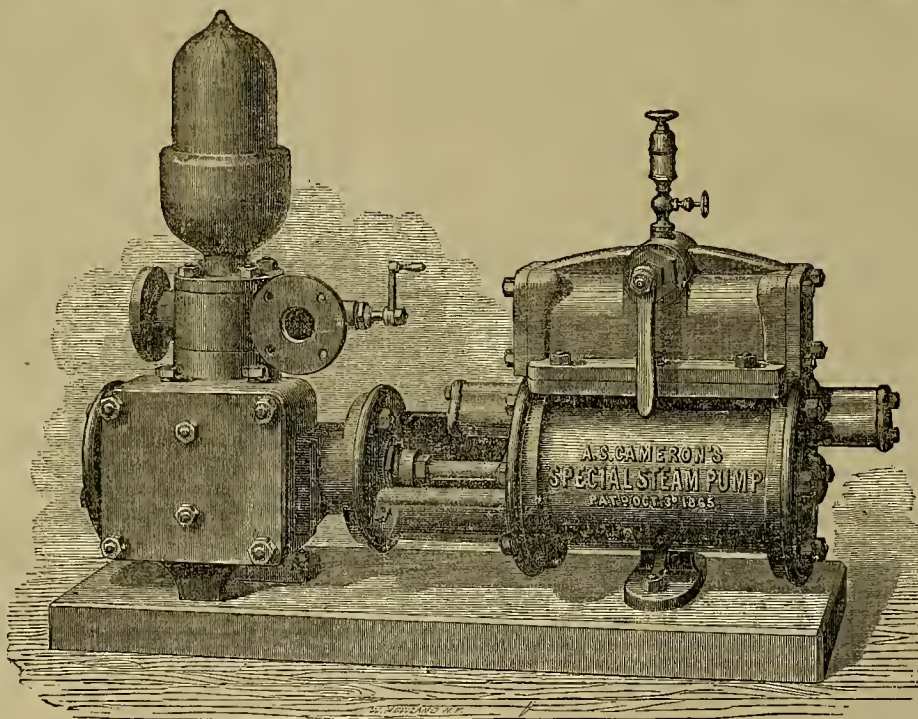
lishment entirely with 'channel ways,' ports or 'passages.' By removing one bonnet the whole interior is exposed, and there is not a spot where a single speck can lodge without being detected. The whole machine works noiselessly. Its compactness, simplicity, strength, lightness, and consequent cheapness, must recommend its use in every situation where a pumping engine is required." David Stoddard, 114 Beale street, is agent for the sale of these pumps, as also of the various other patterns from the same manufacturers; some of which have fly-wheels, others being steam and hand pumps combined.

NEW INVENTION.—Mr. Z. P. Davis, of Nevada, has invented a new cartridge for

PRINCE ALFRED AMONG THE MINERS.—His Royal Highness Prince Alfred, has recently visited several of the Australian mines. All sorts of attentions were shown him, from Ballarat to Bendigo. The Prince, with his party of Honorables, descended several shafts at the gold mines of the latter place. His Royal Highness, on these occasions, wore a red shirt, like ordinary mortals. At one place he descended the shaft in a cago made on purpose for him. At another, a pick, also made for the occasion, was swung lustily against the wall by him for several minutes, thereby showing conclusively that he, too, was thoroughly acquainted with the art of mining. The de-

lighted miners pronounced him a "regular brick." The fact that His Royal Highness perspired freely, during this performance, is duly recorded. Whether His Royal Highness used his pocket handkerchief in consequence, is, however, not stated.

At these Bendigo quartz mines, His Royal Highness condescended to accept a number of rich specimens, of considerable value. At the sluice washings of Ballarat, divers nuggets, varying in weight from three to ten ounces, were presented to him;—all of which His Royal Highness graciously pocketed. "Appropriate remarks" accompanied these presentations, and His Royal Highness promised to send speeches in reply as soon as he could find time to write them. Perhaps his heart was too full for utterance; or it



CAMERON'S SPECIAL STEAM PUMP.

THE TORREY FESTIVAL.—On the 20th of December last, the Botanical Club of New York celebrated the fifteenth anniversary of the completion of Dr. John Torrey's "catalogue of the plants growing spontaneously within thirty miles of the city of New York," by a supper at the Astor House. Invitations were issued to all those who had been prominent in the study of American botany. Each guest had a sprig of *Torreya* in his button hole. After supper, Prof. Thurber gave a resumé of the progress of the science in this country, closing with a handsome tribute to Dr. Torrey, the guest of the evening. Dr. T. replied feelingly to the demonstration. Several other gentlemen followed with remarks, and several letters were read from noted botanists who were unable to be present. Among these letters was one from the venerable Dr. Jacob Bigelow, of Boston, now the oldest American botanist living. He closes thus: "Although if a scientific section of my trunk were now to be made, it might exhibit about four-score annual circles, yet I am happy to state, that the ligneous fibers appear thus far to do their duty, and the sap vessels to transmit their contents; and I confidently trust that on no occasion will my botanical friends find me to be hollow-hearted."

THE AMERICAN NATURALIST.—The March number of this magazine commences the second volume. It will hereafter be issued as a publication of the Peabody Academy of Science. The munificent donation of George Peabody, of one hundred and forty thousand dollars "for the promotion of science and useful knowledge in the County of Essex,"—in which county he was born, has been applied by the Board of Trustees as he directed. The building known as the "East India Marine Hall," in Salem, has been purchased. By arrangements made with the East India Marine Society and the Essex Institute, the valuable museum of the former, and the scientific collection of the latter, will be brought together in that Hall. The Peabody Academy of Science, under which name the Trustees are to be incorporated, will therefore have, at the outset, a museum which will, in some respects, be unequalled in this country. The *Naturalist* promises to take high rank among publications of the kind. The present number contains several interesting articles,—and its typographical execution is in the highest style of the art.

lishment of the New York Steam Engine Works. The smallest size of this pump is No. 0, which has a steam cylinder 3½ inches diameter, and pump 1¼ inches diameter; this, and the three next sizes larger, are mostly used for feeding boilers, for which purpose they are highly recommended. We are informed that they are extensively used in the East, and in Cuba; and that they have also been introduced into the English market with great success, as learned through the medium of notices in *Engineering* and the *London Engineer*. The pump is described in the *American Artisan* of Sept. 27th, 1865, as follows: "This pump is remarkable for its compactness and simplicity, its parts are few, strong and very plain, the operation is such that there is not an atom of steam used beyond what is necessary to move it. There is no dead counter to the pump; it will start from any point. The pump cylinder is fitted with a piston and four valves of generous proportions. The interior of the cylinder is so arranged as to

breech-loading guns, a recent trial of which, according to the *Transcript*, of that city, in the presence of experts, was pronounced far superior to any now in use. The advantages over any other cartridges are, that it is discharged by an ordinary percussion cap, and may be as readily loaded with powder, shot and wads as any ordinary muzzle loader—while the cartridges in use for breech-loaders require machinery. The chamber used for Davis' cartridge will not wear out, while those now in use cannot be used more than three or four times. Davis ought, adds the *Transcript*, to have a patent on his invention.

THE EVEN SECTIONS.—The Register of the Land Office in this city has received a dispatch from Joseph L. Wilson, Commissioner of the Land Office at Washington, announcing that the even sections of land along the line of the Central Pacific and Western Pacific Railroads have been restored and are now open to preemption and homestead settlers.

may be, that His Royal Highness couldn't possibly stop just then to make speeches. Toasts were drank, cheers were given, handkerchiefs were waved,—for there are fair hands in Australia,—and everybody was delighted.

DR. LIVINGSTONE.—A London telegram dated April 8th, is as follows: All doubts as to the safety of Dr. Livingstone are dispelled. Sir Roderick Murchison to-day received a letter from the distinguished traveler, which came via Zanzibar. Dr. Livingstone writes that he is in good health. His journey of exploration has been successful, and he will soon return to England.

PATENT OFFICE DELAYS.—Persons who have met with unusual delays in securing patents, may take heart from the following, which we give on the authority of an Eastern exchange: Nathan Parish, of Kalamazoo, Michigan, applied for a patent for a fan-blower twenty-five years ago. He obtained it last month.

[Written for the Mining and Scientific Press.]

Economy of Fuel, by the Expansion of Steam.

EDITORS MINING AND SCIENTIFIC PRESS: Having seen various communications and journalistic statements relating to the expensive trials recently made in this country, having reference to proving the often reiterated records of engineers, from Watt's era to the present hour, I have thought that it may interest many of your readers to know some of the more elaborate, exhaustive and impartial methods adopted to this end in the "old country," for establishing the full advantages that are derived from the expansion of steam. I do not deny that comparative trials are sometimes essential for particular purposes, to ascertain how far it can be beneficially carried for peculiar requirements under various circumstances, but such trial as it seems to have had in the U. S. Navy is most preposterous, carrying as it does a remnant of barbarism from a country whose inhabitants are speaking and recording facts in the same language. Repeating experiments in such a manner, regardless of the valuable tests of the past age, is indeed expensive analogism; as, after the whole oceanic steam navy had been fitted with non-expansive machines, these experiments were commenced to reestablish a principle, which all experienced men knew before the vessels were built; and reminds us of those short-sighted miners, so prone to erect expensive, full-sized mills or smelting works, who discover too late that they have supplanted the mining engineer, and the model pan or crucible, and must pay most extravagantly for such experience; yet such victims are legion.

In the following remarks I advocate expansion from a practical basis, and although I prefer separate expansion valves for all cases of slow travel, there are numerous quick-traveling, non-condensing, (locomotive, sawing, milling and factory) engines, that are not benefited by the extra valve, as an approximately correct expansion can be sufficiently attained by the single D "lapped" slide, favored by the quick travel of piston, intervening the initial pressure and the closing of the slide passage, under the "wire drawing" or restrictive action of governor valve.

The most systematic and reliable trials ever instituted, and consequently valuable data, have been obtained from the County of Cornwall, England; in the first place, from the system of competitive methods; secondly, it has been the greatest field for consecutive developments of economy for a century; perfected as it has been by Trevithick, Wolf, Hornblower, Sims, and Groze; as well as the living practitioners of the present day; and lastly, its manufacturers command world-wide names, having made the largest steam engines that ever worked, and those the most economical at their various duties.

The engines made to drain the water from the Harlam Lake, Holland, were 144 inches (12 ft) diameter of cylinder, and each engine worked thirteen levers, that diverged from the piston cap through apertures in a round-house, each lever being connected to a 60-inch pump, making eleven strokes per minute of ten feet in length, thus elevating in the aggregate effect, a column of water (10x11x13) 1,430 feet high by five feet in diameter, per minute. The lake was very successfully drained by three such engines, which were erected twenty-four years ago, and the Messrs. Harvey & Co. of Hayle Foundry, could have made, even at that time, a 200-inch engine if required. This firm has been supplying machinery for pumping, hoisting, milling, crushing, and manipulation in all phases for the extraction of base and precious metals, to all countries excepting the United States of America; but strange as it may be, I have not heard of or seen a single Cornish pumping engine in this country, or an engine embodying its advantages.

The Cornish patrons have elevated the mechanical engineer to a separate profession; he designs, draws, supervises the manufacture and the erection of all machinery, and visits each mine periodically, to see that it is kept in good order, and that the men and machines are doing their duty; he may superintend as many mines as he can obtain orders for, so that his interests are enhanced by their better performance. These causes work out good effects, as the makers are controlled and also interested in making good engines to compete with other firms in the excellent testings that are applied by a third party, who has an umpire's duty to perform for the public, in the following manner: As soon as the new engine is ready, he supplies and fixes an instrument* on the engine to record the number of strokes made during the month, the box being securely locked until the time expires. He then calculates the work performed during this period, and publishes the comparative statements in a circular for this purpose. By these means the most positive results are obtained, and such progression and superior economy that the Cornish engines have advanced from the performance of Watt's engine, where twenty-three millions of pounds had been lifted one foot high by a bushel of Welch coals, (\$4 pounds) to the modern duty of 110 millions, and secured the supply of engines from that county, as erected by its engineers, even to the water works of the great cities, where the local makers still fail to secure similar results. These advantages are more particularly derived from expansion of steam, extra clothing to prevent radiation, sufficiently large boilers, and slow combustion, which are settled facts in the history of the steam engine. The expansion is varied by cutting off, at from one-tenth to three-fourths of the stroke, depending on the load, description of work, etc., taking its position between absolute safety and economy. The engine-drivers are fully aware that the movement of the expansion slide, up or down, increases or decreases the fuel accordingly. The next series of experiments were conducted in a new field of engineering, for testing its value on the locomotives of the Great Western Railway, (London to Bristol) and were intended to prove if sufficient practical economy could not be obtained by the (then new) "lapped slide" valves; by diminishing the lap on the exhaust as it was increased on the steam side, to its practical limit, still producing a fair diagram of expansion from $\frac{1}{4}$ steam through the remaining $\frac{3}{4}$ of the stroke, and showing no injurious defects at the entering or departing angles; this has proven the maximum for tractional economy, although in some cases of light draught the effect has been still increased by the varied position of the ordinary slot-link, reversing motion; and separate cut-offs are therefore discarded for quick traveling, non-condensing engines; the more obvious reasons being complication, weight, friction, and wear and tear of the quick traveling, self-carrying railway engine.

Then followed the slow traveling, red-taped paraphernalia harness of the British Navy, (some twenty years ago) urged as they had been by qualified engineers, who had attached temporary fittings for the purpose of cutting off by the ordinary throttle valve, (in vessels that had insufficient boiler capacity for supplying the engines with full pressure of steam) and fully demonstrated the economy of expansion, by the vessel running faster per log line and log book than she had ever done under what had been erroneously called full power.

Full trials were now ordered, and separate expansion valves resulted. The examinations were wonderfully assisted by the recordings of the indicator's* pencil curve, traced on sheets that had to be sent to the Admiralty for the superintending engineer's perusal, as an important part of the engine log book; by comparing which with the ship's log, the pressure of boilers under non-expansion could be compared with expansive action, and corresponding speeds examined for all vessels, just as well at home as at sea; and these results having been noted, this eminently qualified engineer, (Thomas Lloyd) recommended the Admiralty to educate the commanding officers to these advantages, in long cruises, by using less fuel and economizing by expansion, as far as their duties permitted. The result of twenty years' records has been, that no modern engine is now made for H. M. S. Navy, with even a common slide, to carry steam the whole stroke; as they are all "lapped" to carry about $\frac{1}{4}$, and have separate expansion valves to cut off at from $\frac{1}{4}$ to $\frac{3}{4}$, so that the grades are so fitted for all circumstances, that the steam can be kept at full pressure and the feed and brine be always regular in their actions.

Let us steamboat proprietor delay in ob-

taining expansive action; and if a trial is still necessary, it can be made by discarding or "blowing off" one boiler, and working with the remainder on a cruise through the whole watches of firemen, and noting the coals consumed and the distance run with expansion from the full pressure, and also under the greatest pressure they can get without the expansion, or by having reference to those who have used both, they will find an immense advantage, more particularly in long voyages.

J. S. PHILLIPS, Mining Engineer.
San Francisco, April 2d, 1868.

* Watt was the inventor of the counter, indicator and expansion valve.

The Sugar Maple.

MESSRS. EDITORS:—In an article published in your issue of March 28th, entitled "Maple Sugar," some facts in regard to the culture and habits of the maple tree are desired. As a rule, the tree does not thrive away from the first line—that is, from those latitudes and altitudes where there is no frost. Moreover, observation proves it to be a tree that flourishes best in moist, rocky glades, and on hillsides. In traveling westward across the continent, the maple diminishes in size until we arrive west of Great Salt Lake. The last specimens of the tree I recollect to have seen in crossing the Plains, were in Rush Valley, or rather in the steep mountain cañons that open into that valley on the east; the largest of them seldom exceeded a few inches in diameter, and they were entirely confined to the immediate vicinity of the water courses. They grew in dense, impenetrable thickets, and to an average size of about one and a quarter inches diameter. In every other respect the tree was identical with the hard-eyed maple of the Eastern States. It is my impression, that the cultivation of the tree could not be made profitable in the valleys of this State, except at such altitudes as would have at least three months of frost and snow, and then only on northerly slopes. The flow of sap in such quantities as to make it profitable, also depends upon the frost. It is always observed in those regions where the manufacture of the sugar is carried on, that as soon as the spring is so far advanced that it does not freeze at night, the flow ceases to be in sufficient quantity to be worth gathering; and during the sugar season, which never extends over more than six weeks, only those days which follow frosty nights are counted on.

F. M. SHAW.

SAN FRANCISCO, March 31st, 1868.

Since the publication of the communication above referred to, we have been told that the tree from which sugar is made in the Southern States, is quite different from the sugar tree of the Northern States; and that the sugar produced therefrom is quite dissimilar in taste from the maple sugar produced in New York and the New England States. Can any one furnish any definite information with regard to that point?

ENGLISH CAPITALISTS WAKING UP.—A communication to the London Mining Journal, Feb. 8th, has the following: "The accounts of the great gold and silver lodes that traverse the Sierra Nevada, show that the mere surface workings, in five or six years, have sufficed to build cities of 15,000 inhabitants, and to establish intercommunication equal to many old-established provinces. Seeing the great riches of those lodes, it is not to be wondered at that capitalists are beginning to prick up their ears, and to talk of giving those marvellous El Dorados a fair trial; and, after the present apathy has passed away, we need not be surprised at seeing a goodly portion of our mining capital passing westward to those hitherto unknown but evidently splendid fields of enterprise."

SOLAR ECLIPSE IN 1868.—A scientific expedition is in preparation for the purpose of taking observations of the eclipse of the sun, which will take place during the present year. A station has been chosen situated in the Himalaya mountains, at an elevation of 7,000 feet above the level of the sea, in order to escape the clouds.

THE AIR-TREATMENT OF WINE.—MONS. R. d'Heureuse, the patentee of the new process by which new wine is ripened in a few weeks, instead of, as in the old method, years, gives us the following resume of his method. He says:

In all "must" are certain nitrogenous substances, the cause of fermentation, if called into action by some impulse. The contact with air and the germs of fermentation therein constituting the impulse, causes in "must" the violent fermentation—generally termed "the fermentation"—which eliminates a portion of the deleterious substances by oxidation in shape of yeast. To prevent later fermentation and diseases of the wine inherent therein, all the nitrogenous substances have to be eliminated. This can be done slowly, tediously, expensively and imperfectly, by frequently drawing the wine from cask to cask for years, or it may be done in a few weeks, thoroughly, easily and economically by impelling air into the "must" or young wine. The air it is, which in either case acts, oxidizing and eliminating the nitrogenous substances, and the wine is constant and sound only, when free from all these substances, which also carry with them all that had or earthy taste which vitiates nearly all American wines.

An air-pump is used by M. d'Heureuse for the purpose. In some cases it is desirable that the air be previously heated. The heater has a pipe and fanet, and the heated air may be mingled with that of ordinary temperature at will in a reservoir arranged for the purpose.

From this the air is passed through a cotton filter of simple construction and then conducted through some pipe or rubber hose to which a perforated mouth-piece of tin, copper or gutta percha is attached. This mouth-piece, mostly in shape of a pipe or pipes to suit the vat, is sunk to the bottom of the ferment-vat, and requires frequent cleaning from anything adhering to prevent souring.

Air being the necessary agent for fermentation, the impelling of it into the "must," is commenced at once. A slow current of air will generally prove sufficient. The temperature of the air to be kept low as a general thing; only exceptional cases may require it exceeding 70° F.—55° to 65° to be considered the average.

It is impossible here to lay down a general rule for the duration and quantity of the impelled air; it depends on the kind of "must," the weather and locality. However, it is certain that a deviation from the precise quantity of air, for the production of the very best wine—will be of less injurious consequence to the product than the incorrect guess—the word is used advisedly—as to the termination of the usual fermentation. It will also be preferable, toward the end of the process, to impel the air not continually, but to allow some intervals, during which the manner of clarification will permit an accurate judgment, whether the process is finished or not.

By this plan, it is claimed, a given quantity of wine may be worked with a smaller number of vats and in far less time than by the usual method. The losses by various accidents which, when the time is prolonged are liable to occur, are a yearly offset against the cost of pump-apparatus, which will last for years.

It was formerly supposed that air should be excluded from wine; and this was done in the face of the fact known to all, that it was improved by occasional changing from cask to cask. About 25 years ago, Liebig proposed that the casks be left open. This did not answer the purpose, because the air came in contact with the surface only of the wine. Mons. d'H. says that upon the first announcement of his plan, it met with no encouragement. He has now an ally in Mr. C. H. Frings, a well known German expert, who gives it as his opinion that this method is the only one suited for American wines. The patentee considers the method as adapted also to the treatment of cider, beer, and all fermented liquors.

PERPETUAL MOTION.—A Petersburg, Virginia, man has discovered perpetual motion at last. The *Index* describes the arrangement in full. It is to be patented at once. Mr. Wright, the inventor, has been occupied eleven years upon it, but has finally succeeded in solving the problem which so many wrong-headed men have puzzled themselves with. Only he hasn't.

Mechanical.

THE STEEL QUESTION.—Under this head, the *London Mining Journal* has an article from which we extract the following:—"Makers of steel, who have hitherto been dependent upon the crucible process, and who in that process have made large sums of money, are now beginning to look about them for a method by which metal can be obtained in larger quantities, in shorter time, and at less cost than by the old method. They are not prepared to take up the Bessemer patent, because they believe in the possibility of making steel in a much less cumbersome fashion. They feel that the process they seek must not be dependent upon the best ores; but, above all, that they desire to avoid the re-heating. Steel must be made direct from the furnace in which the ore is smelted. Experiments are being made with this view, and approaches to perfection are being made every week. The science of chemistry is now being applied to the production of iron and steel to an extent not hitherto dreamt of. Up to this time chemists have not had any experience in dealing with huge quantities, but such a laboratory as is now supplied at some of the great iron works in the Cleveland and Ulverstone districts is enabling them to arrive at results of a more practical character than those which they thought they had arrived at in their tiny experiments. No ironmaster who is moving with the times now dreams of making experiments without the assistance of the chemist, and chemists are now attached to all the great steel works. The results already arrived at would seem to point to the conclusion that wherever ore is most abundant and fitted for making iron, there, too, steel will be produced most economically and successfully."

HISTORY OF A BESSEMER STEEL RAIL.—Robert Mushet gives the following history of a steel rail: "In the early part of the year 1857 a steel bloom was made by melting in crucibles Bessemer metal with spiegeleisen. This bloom was rolled into a double-headed rail, and in the spring of 1857 it was laid down at Derby station. On the 21st of December, 1867, ten years and six months after it had been laid down, it was reported to be apparently little the worse for wear. Now the wear amounted to, on an average, 250 trains passing over it daily, and a like number of transits of engines and tenders. Reckoning now the weight of each train at 100 tons average, and that of engines and tenders at 20 tons, we have an amount of 30,000 tons per diem passing over this rail, and this continued for, say 300 days per annum, 10½ years, gives a total of 94,500,000 tons. Now on the Canadian railways the iron rails are worn out by a traffic ranging from four millions to thirty millions of tons, according to the quality of the iron rails. The Derby rail, therefore, of Bessemer steel, has already sustained more than three times the amount of traffic which suffices to destroy the best iron rails, and, in spite of this, it is still 'apparently little the worse for wear.' The opponents of steel rails will argue, no doubt, that this rail is an exception, and was better than other Bessemer steel rails, because the metal was remelted. Such, however, is not the fact, for steel is always more or less deteriorated by remelting; and the rail ends from Bessemer steel rails, made at Crewe, and therefore of course, the rails themselves are of as good and as durable a quality of steel as this Derby rail."

FIRST NEW ENGLAND IRON WORKS.—In 1637, bog iron ore was discovered in Lynn, Mass., and the first attempt to manufacture iron was made in that town. In 1643 a company was formed, called the "Company of Undertakers for the Iron Works;" its object was the smelting, forging and refining of iron. The General Court granted it the exclusive right to make iron, for twenty-one years, provided that they made, after two years, sufficient iron for the country's use. Heaps of scoriae are still visible at the site of the works. They were finally abandoned about a century after their commencement.

THE NEW ENGLISH IRON-CLAD "HERCULES."—The English are backing down squarely in regard to their iron-clads. The new monster, the *Hercules*, recently launched, is the largest and most heavily armored broadside ship in existence; but it is said that she can only carry three days' coal. Nobody seems to have any faith in her. The *London Times* now comes out flatly in favor of the American turret system, and calls upon the Admiralty to build scores of such vessels.

FRICTION OF STEAM ENGINES.—That steam engines never give in a useful form all the power actually expended in impelling their pistons is a patent fact; but with this knowledge it may be said that all information on the question begins and ends. There are no published data representing the results of experiments which possess much value. It is not easy to say why engineers, manufacturers, and, indeed, employers of steam power generally, have manifested an utter want of curiosity as to the amount of power actually obtained from steam engines. The real importance of the subject is overlooked. One is satisfied if his engine burns not more than 3¼ pounds of coal per indicated horse-power per hour, and looks down a good deal on his neighbor's which burns, perhaps, four pounds of coal in doing apparently the same work; forgetting that the indicator cannot measure useful effect, and that it is quite possible that the engine burning most coal is really more economical than that which burns least, when the work done is expressed in terms of useful effect and not as defined by indicator diagrams.

After a careful study of the question we have come to the conclusion that but three things in connection with it appear to be certain. The first is, no one knows much about the matter; the second is, that the power wasted by engines is much greater than is commonly supposed; and the third is that this result is sometimes due to very small imperfections in workmanship and design. Twisting strains, or badly fitting surfaces may cause an incredible amount of frictional resistance. We have heard of an instance in which a pair of screw engines required just half the pressure to drive them at their normal velocity without the screw that sufficed to propel the ship at her highest attainable rate. That is to say, the engines consumed in overcoming their own friction, 50 per cent. of their total power. This result, no doubt, was due to the fact that the engines were put on board while the ship was yot on the stocks. When floated she altered her shape slightly, and threw a strain on the rigid shaft. Such a blunder is frequently committed.—*Engineer*.

PUDDLED STEEL FOR RAILS.—The *Engineer* calls the attention of iron-masters to puddled steel for rails, as a material which, standing between iron and steel, is probably superior to all others. It is little more than a very fine grained, ductile, homogeneous iron. It is durable and cheap. We quote from the article: The perfection of a rail would be one with a very hard head and a fibrous foot. Given the fibrous foot, the head can scarcely be too hard,—cannot possibly be too homogeneous and fine grained. Such a rail could only be made by welding steel top plates on to iron webs and feet. The experiment has been tried with Bessemer metal, totally without success unless at least fifty per cent. of steel was present, so as to throw the weld into the web. Puddled steel, on the contrary, will weld perfectly to iron, although forming not more than 12.5 per cent. of the whole mass. We must go to Germany to learn of what these compound rails are capable. The first rails of the kind were laid at Hamm, on the Cologne and Minden Railway, in February, 1854. Iron rails were found to last barely two years at this junction, the annual traffic through which can scarcely be less than fifty millions of tons. The compound rails weighed but fifty-six pounds to the yard, and the steel used was but ¾ inches thick. After eleven years' use, these rails scarcely showed any marks of wear, except on the inner sides of the upper tables, and were still, of course, in perfectly good condition for service.

ALUMINUM BRONZE IN MACHINERY.—M. Hulot, of the French Imperial Mint, has called attention to the fact that the perforating tools employed in the division of postage stamps are rapidly blunted by the gum used to render the stamp adhesive. Indeed, so rapidly is the effect produced, that after a few hours' work the tools, instead of piercing the paper, only crush it. M. Hulot replaces the steel by aluminum bronze at ten per cent., and the new tool, striking 126,000 blows per day, or making 180,000,000 holes, has worked for several months without requiring repairs.

Aluminum bronze does not unite freely with solder by the old process; but if we take equal quantities of zinc-amalgam and common solder, aluminum bronze can be admirably soldered together by it. This solder becomes better again, if it is alloyed with twice or thrice its weight of tin. Thus there are three excellent solders—1st, solder with half its weight of amalgam; 2d, with a fourth; 3d, with an eighth.—*Science Review*.

Scientific Miscellany.

LENSES OF ROCK CRYSTAL AND TOPAZ FOR PHOTOGRAPHIC USE.—A. Claudet, F. R. S., acting upon a suggestion of Sir David Brewster, made some experiments with lenses of topaz, etc., which he thus details:

I tried a lens of rock crystal, non-achromatic and simply double convex, such as those used for common spectacles. I operated with an aperture of about half an inch; but, the lens being non-achromatic, I had to operate with the chemical rays, which by previous experiments I had found to be situated twenty-four inches behind the plane, giving a correct visual focus of a person placed at twelve feet before the camera. The result was a very sharp and correct portrait, every plane of the figure being equally well defined.

Sir David Brewster was pleased with the success of this experiment, and considering that it was partly due to the small dispersive power of rock crystal, suggested that I should now try a lens of topaz, the dispersive power of which is still less than that of rock crystal.

Accordingly I had a lens of topaz made, with the curves as six to seven, giving less amount of spherical aberration. The result was still more surprisingly beautiful than that obtained with the double convex rock crystal lens.

I must not omit to remark that the portraits I have taken by this means required a sitting five or six times longer than when we operate with quick double achromatic lenses of short focus, such as those which are generally employed for taking portraits; so that in practice, for portraits, small topaz or rock crystal lenses would be but slightly available. But, as was remarked by Sir David Brewster on seeing the result of the experiment, photographers have only to endeavor to increase the sensitiveness of their preparation; and there is no reason why a sufficient degree of sensitiveness could not be attained, by which photographers would operate with lenses giving no distortion and having a very long range of definition.

ANIMAL ELECTRICITY.—This term was coined by Galvani to designate what seemed to him a peculiar modification of electricity, seen only in animals,—the existence of which he believed to be proved by his celebrated frog-leg experiment. But it is now established that this is due to the same cause as the electricity of the battery, viz., chemical decomposition. The *Engineer* says: Unless chemical action can be set up there is nothing to indicate the presence of that vital muscular agency which the first experiments in connection with the subject led the older philosophers to insist upon and adhere to. The animal current, which they so fondly believed in, is simply an ordinary electrical current produced chemically by the contact of a saline solution with animal matter. Adopting this view, it is easy to perceive that the development of animal electricity, in invalids and diseased organs, is solely the consequence of chemical decomposition. Thus, for instance, the mucous membrane of the mouth becomes electrical in patients suffering under disease of the stomach or digestive organs. All animal excretions are electrical, and urine possesses this property in so remarkable a degree as to cause the needle of a galvanometer to make a complete revolution on the dial. The electricity of fishes results from an alkaline solution in the cells of the electrical organs. All the effects of animal electricity may therefore be regarded as closely resembling those of fermentation and putrefaction.

THE STONE AGE.—Professor Carl Vogt divides, as do Lartet and Christy, the Stone Age into two periods: the *Cave-bear epoch*, distinguished by large beasts of prey and pachydermata, rude flint implements, etc., and the *Reindeer period*, characterized by hammered stone weapons, artfully carved bones, a northern fauna, and human skulls, indicating a more intelligent race. An interesting article in the *American Naturalist* for March, suggests the possibility that the two races were cotemporaneous. The last named might have inhabited the valleys near the Alps and Pyrenees; while the other may have lived in England, Northern France and Germany. In this view, the supposed great length of the Stone Age is much reduced.

NEW RAPID TELEGRAPH.—The Abbé Moigno gives the *Journal of the Franklin Institute* a description of the new telegraph invented by M.M. Chaurapaignes and Lambrig, which we condense:—From 120 to 180 dispatches can be sent per hour by a single wire. A roller, moved by clock work, carries a metallic band which communicates with an electric battery. Upon this band the dispatch is written with "insulating ink." At the receiving end of the line, another roller carries, in like manner, a band of unsized paper, which passes over a smaller roller half immersed in a chemical liquor composed of water, nitrate of ammonia, and ferro-cyanide of potassium,—by which means it is sensitized. It is then changed in color by contact with a metallic point which corresponds with a similar one traversing the metallic band at the other end of the line.

SOLIDIFICATION OF BISMUTH.—Mr. Alfred Tribe has been experimenting with bismuth to ascertain the correctness of Prof. Tyndall's statement, that the anomalous expansion of water in the act of cooling below 4 degrees C., or 39.2 degrees F., is by no means an isolated instance of the kind, but that other bodies, and particularly molten bismuth, participate in this extraordinary property of expanding near the point of solidification. Mr. Tribe, in a paper read before the London Chemical Society, expresses the opinion that the analogy between water and bismuth is imperfect, since in the case of molten metal there is no perceptible range of temperature through which it expands on cooling. The act of solidification is itself accompanied by an increase of bulk, but there is no evidence of this expansion taking place prior to the act of crystallization.

"PHARAOH'S SERPENTS."—It is said that a harmless variety of this toy may be manufactured by taking the black liquor resulting from the purification of coal oil with sulphuric acid, and treating it with fuming nitric acid. The dark-colored resinous matter which swims on the surface is to be collected, washed and dried, when it forms a yellowish-brown mass, having about the consistency of sulphur which has been melted and poured into water. When this mass is ignited it undergoes a wonderful increase in bulk, so that a cylinder one inch long will give a snake about four feet in length.

DIETETIC SALT.—Dr. Lankester proposes to substitute for common salt, as a condiment, a preparation in which, in addition to the salt (chloride of sodium), other substances are combined in the proportion in which they exist in the human blood. His idea is, that as these are used as remedies in disease, they will act as preventives of disease when used habitually as food.

POROSITY OF CAST IRON.—Messieurs Deville and Troost have found by experiment that hydrogen, carbonic acid, and carbonic oxide actually pass through the walls of a cast iron stove at even a dull red heat. This is a strong argument against the use of such stoves, for carbonic oxide is a poisonous gas. Much of the discomfort arising from their use is probably due to this cause. Tile or soapstone stoves are preferable.

THE EMBRYO HEART.—Herr S. L. Schenck has published a paper on the physiology of the embryo. Examining the heart of the chick in the egg of the fowl, he discovered that its movements are, at first, quite independent of the central nervous system, and may be regarded as simple contractions of the protoplasm. When the heart is removed it still beats, if maintained at a temperature of from 34 degrees to 36 degrees Centigrade. The most powerful microscope fails to show any trace of nervous ganglia; hence, he concludes that the contractions of the heart are due simply to the action of the heart on the protoplasm.

ARTIFICIAL NERVE.—Prof. Wurtz, of the College of France, has succeeded, by a synthetic process, in forming a strong base, identical with that first obtained by Liebig in 1865, who subjected a crystallizable substance derived from the brain, and containing phosphorus and nitrogen, to the action of strong hyarta water.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, April 6, 1868.

Dr. Thomas Bennett in the Chair. H. S. Craven, A. J. Bowie, Howard Crittenden, were elected resident members. Col. Ezekiel Jewett, of Utica, N. Y., was elected a corresponding member.

BUILDING SITE.

Dr. Stout, from Special Committee on building site, reported the failure of the application to obtain any portion of Yerha Buena Park for such purpose. The Board of Supervisors were opposed to it, and hence no application was made to the Legislature. He suggested the formation of a sinking fund to buy a lot. Some objections were urged to this on the ground of inadequacy of present income. Dr. Ayer proposed a special monthly contribution. Dr. Stout thought some mode of obtaining means should be agreed upon before the price of real estate became excessive. A purchase now would give the Academy the benefit of the advance in the price of land. The whole matter was finally referred to the Regular Committee.

AN INTERESTING FOSSIL.

Mr. Clayton called attention to some specimens of what he supposed to be a new family of corallines, taken from the Silver Peak Basin, in Nevada. One of them contained a new kind of trilobite, or at least one, the description of which he could not find in the books. He proceeded to describe the formation of the country in which these fossils were found.

SALT ROCKS.

Mr. Clayton then produced a specimen of salt rock, taken from the same locality, and stated it as his opinion that the origin of the salt found in Nevada was not, as was commonly supposed, by upheaval, but was to be found in saline rocks.

Dr. Ayer said this subject was one of great importance and interest. He had noticed that all the salt found in the Utah Basin was exceedingly pure chloride of sodium. He had been informed by the superintendent of the Geological Survey accompanying the overland railroad, that it was his opinion, that the salt almost always came from the decomposition of riolite rocks, and his discoveries had shown that rock dotted all over the basin. It was easily decomposed by the action of thermal springs, and being washed down, deposited the salt. There were thousands of acres of salt around them, and though it had often been dug to a depth of six or eight feet, its thickness was unknown. By analysis of this rock it was found to contain no magnesium or boracic acid, but only chloride of sodium.

Dr. Stout said that he had observed, in analyzing volcanic rocks, that potassa and sodium were liberated by decomposition. The quantity of these substances so liberated by volcanic rocks in that country must be immense, and it was not unlikely that this supplied the bulk of the salt found on this continent.

Dr. Cooper said that the most important evidence that no great salt sea ever existed in Utah, was that no marine fossils were found there. Had any great sea filled the Utah Valley at the time of the tertiary period, or more recently, marine fossils would have been found there. But, on the contrary, fresh water fossils had been discovered, and fresh water shells were found on the upper part of the Snake River and elsewhere, showing that large bodies of fresh water had existed there, but no salt water.

SPONGES—A VENUS' FLOWER BASKET.

Dr. Ayer called attention to a very beautiful specimen of the sponge family, donated by Mr. W. G. Sherman, together with some Indian weapons, both being from the Philippine Islands. He remarked that the sponge was variously ranked, as animal or vegetable. It evidently occupied a position between the two, but where the line was to be drawn it was impossible to say. It was at present, however, generally thought to be animal. The sponge had for its basis, horny, calcareous, or silicious substances, and was enveloped in a gelatinous or fleshy mass, which was the animal. The common sponge had a horny base; others had silicious bases, as this one; and if placed in the fire, and heated to a white heat, it would remain unchanged. Sponges were found in all seas, from the Arctic to the Tropic, and were in abundance on the coasts of New England and California. This one belonged to a genus first discovered on the coast of Great Britain, where there were some twenty-four genera. It was brought from the Philippine Islands, and was known

as "Venus' Flower Basket." It was a most beautiful specimen. It consisted of a series of little straight rods, forming a tube. This tube was woven all over with fine threads, that looked more like the work of man's hands than of nature. Each little thread resembled spun glass, but when placed under the microscope, every one was found to comprise a series of concentric layers. Outside of these were a number of little ridges, to give it strength. At the bottom was a mass of loose flocculent fibers, and it was probable that these were imbedded in the ooze or mud of the ocean where the animal dwelt.

A committee of five, consisting of Messrs. Stout, Logan, Yale, Ayer and Stearns, was appointed, on motion of Dr. Stout, to draw up a report on the subject of the abrupt and shabby discontinuance of the Geological Survey. Adjourned.

A Labor Exchange.

We are pleased to see that the long-talked-of idea of the establishment of a Labor Exchange in this city is about to take form and shape. A meeting of the friends of such a movement was held at the Merchants' Exchange, on Tuesday last, when the subject was freely and fully discussed, and a committee of four appointed to report at an adjourned meeting a plan for the organization of such an association. This committee reported at an adjourned meeting held at the Merchants' Exchange yesterday afternoon. The plan which was then proposed and accepted, adopts the title of "California Labor and Employment Exchange." The objects of the association are to collect information from all reliable sources as to where skilled and unskilled labor may be employed, and to place itself in communication with both employers and employes, and especially to assist the thousands of laborers who are constantly arriving in this State, in securing employment. It will also be made a part of the business of the association to aid emigrants with small means in purchasing farms, by collecting information with regard to the most available lands, and placing such men in contact with those who have desirable lands for sale. The expenses of the association are to be borne by voluntary contributions and fees for membership—\$10 being the amount to be paid to constitute a membership for one year. Reasonable fees are also to be taken from such persons as are definitely benefited by the association, and are able to pay; but no fee is to be charged to applicants as a condition of information. Notices of the objects and purposes of the association are to be distributed on all incoming steamers, so far as practicable.

The officers will consist of a President, Vice President, Treasurer, Secretary, and seven Trustees, to be elected by the members. The Mayor of the city, the President of the Chamber of Commerce, of the Mechanics' Institute, and of the San Francisco and British Benevolent Associations, are requested to act as Trustees, *ex-officio*—the Mayor of the city to act as President of the association. The business of the association is to be conducted by a committee of three, to be presided over by the President. A committee of three was appointed to solicit subscriptions for membership, with instructions to call a meeting of subscribers as soon as fifty shall have been obtained;—the same committee to report at that meeting the names of seven members to be voted for as trustees. This movement is a most important one, and it is to be hoped that a beginning so auspiciously made will be carried into a most successful and useful activity.

IMPROVED ERASER.—Mr. William H. Miles, brush manufacturer, No. 117 John street, N. Y., has patented a very convenient rubber eraser, which he is about supplying to the stationery trade. Short bristles are inserted in one end of the rubber, forming a stiff brush for cleaning the paper after rubbing. It will be found very serviceable to draughtsmen, students, and others who freely use the pencil.

New Patents and Inventions.

Under this heading we shall mention, from week to week, as occasion may demand, new and important inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

74,782.—FIRE-LIGHTER.—Levi H. Whitney, Vallejo, Cal.:

I claim, as an article of manufacture, a fire-lighter, constructed of the parts arranged substantially as described.

74,862.—STREET PAVEMENT.—Henry M. Stow, San Francisco, Cal.:

I claim a pavement, composed of tiers of wedge-shaped wooden blocks, driven into a foundation-bed of sand or earth, with spaces between said tiers packed with gravel, or sand and gravel, substantially as shown and described.

74,931.—COMBINATION OF LIFE-PRESERVING AND SWIMMING-APPARATUS.—Halvor Olsen, San Francisco, Cal.:

I claim the combined use and application of the floats, and the extended ribbed and webbed gloves and sandals, constructed and attached to the user, in the manner and for the purpose herein described and represented.

74,994.—SELF-LOADING BATTERY GUN.—I. J. Crammer, Vallicia, Cal.:

I claim, 1. The sash or frame R, provided with lugs for moving the slides S S, and constructed substantially as described, and for the purposes herein set forth.

2. The rock-shaft and frame Q, provided with teeth that move the sash or frame R, substantially as and for the purposes herein shown and described.

3. The construction of the lock for firing the volleys, consisting of the sliding bar J, and dog L, with the lug a, hammer M, and spring F2, substantially as herein shown and described.

4. The device by which the caps are placed upon the nipples, consisting of a combination of the spring E2, dog n, and lugs with the sliding bar S, substantially as herein shown and described.

5. The combination of the hopper O2 with the tubes p and plates t, lugs g, and sash R, operating substantially as and for the purposes herein shown and described.

6. The construction and arrangement of the wall S' in each powder-chamber, adjusted laterally by means of the set-screws to regulate the charge of powder, substantially as and for the purpose specified.

The aim of this invention is the construction of a gun with any number of chambers, from which the powder and ball are discharged from a cylinder which is fed with loose ammunition, and is so arranged that it is loaded automatically by gravitation, and discharges by volleys any number of single balls or cases of shot. The loading and firing may go on automatically without any reference to length of time, except from the overheating of the gun. And any number of cylinders from two to any higher number may be fired in volleys at each discharge. It is so constructed that each volley can be discharged simultaneously by the explosion of one cap. The machinery of the gun is encased in steel plate, and made bullet-proof against small arms. It rests upon a pivot which enables the gunner to direct his fire with as much care and precision as the most skillful can any ordinary small-arm.

It is so constructed that it may be placed upon a carriage and drawn by horses from place to place. It appears to be well adapted for use in fortifications, in case of an attack by storm, or on board of vessels or in any place where rapid firing may be desirable or necessary. It is claimed to be able to discharge 100 volleys per minute. A result giving any approximation to such a number must render it one of the most destructive weapons of war, in close fighting which has ever been invented. See editorial notice.

75,026.—CONSTRUCTION OF VEHICLES.—Geo. P. Kimball, San Francisco, Cal.:

I claim, 1. The combination of the perch A and jack P, with the bars J J and H H, substantially as described and for the purposes set forth.

2. The combination of the bar D, plate O, bolts I I, braces G, and perch A, substantially as described and for the purposes set forth.

3. The combination of the screw-plate C and nut C with eye-bolt S, substantially as described and for the purposes set forth.

75,084.—DRILL-SHARPENER.—Elisha W. Walton, Drytown, assignor to Joseph H. Atkinson, San Francisco, Cal.:

I claim the combination of the swage,

frame and die, in combination with a stirrup-lever and an eccentric, for the purposes specified, all constructed and arranged substantially as described and shown.

75,254.—IMPROVED BEDSTEAD FASTENING.

Bartbolome Essig, Sacramento, Cal.:

I claim the plate C, for attaching the side rail of a bedstead to the post, having an arm C, and oblique lug b, so as to be firmly secured to the foot by the tenon on the end rail, substantially as described.

And in combination with plate C, I claim the plate D, fastened to the side rail, having a lug or key, fitting into a slot or groove on the plate C, substantially as and for the purposes described.

The object of this invention is to provide an improved and reliable means of fastening the rails of bedsteads to the posts, so that they may be easily and quickly taken apart and put together, and, when put together, will be secure, and tend to keep the bedstead firm and solid, no amount of racking having a tendency to loosen the joints. By the means hereby employed, the necessity of making a mortise on each side of the post is avoided; consequently there is little danger of injuring the bedstead in putting it together or taking apart. By this device a bedstead may be taken apart and set up in a short time without the necessity of hammering, while each part of the fastening operating upon another, tends to hold the entire frame in place.

REISSUES.

61,576, dated Jan. 29, 1867; reissue 2,884.

HAY-KNIFE.—Philo O. Soper, San Francisco, Cal.:

I claim, 1. The construction of the blade B, substantially as described.

2. The hearing of the shank C, in connection with the angle given to the edge of the blade B, substantially as and for the purpose described.

3. The point A, substantially as and for the purposes above described.

RECENT INVENTIONS.

NEW PAN.—We have been shown, lately, a new device for grinding and amalgamating gold and silver ores, the invention of Mr. Wm. Hepburn of this place, which we think is destined to facilitate the reduction and amalgamation of ores to a great extent. The principles involved in the machinery are new in their application to this purpose. The shell or outside of the pan is the same as the ordinary one, and Mr. Hepburn says that he can apply his grinding motion to any of them now in use with little expense, but the grinding is done on the top of the muller plates and against the rim of the pan. The muller is made slightly conical and does not touch the bottom of the pan. On it are placed a number of rollers, enough to fill the whole circumference of the pan, but free to move around it. Motion being given to the muller the rollers are thrown out against the rim of the pan and revolve by their friction against it, and will crush the sand with a force equal to their weight, increased by the centrifugal force and to their motion around the central axis. In the mean time the muller is traveling faster than they are, and constantly dragging the sand under them, and it is being crushed by the weight of the rollers and their revolutions on their own axis. Mr. Hepburn has a pan in operation at Sutter Creek, Amador county, only sixteen inches in diameter with rollers three inches in diameter that is working forty pounds of hard quartz sifted through a screen of 3-16 mesh, and reducing it to a perfect pulp in less than three hours with about one dog power. Mr. Hepburn has made arrangements to place his mullers and rollers into a Wheeler pan at the Oneida mill, Amador county, and will run it against others of the same pattern now in the mill. This mode of applying the crushing is entirely new, although it involves a principle which inventors have for a long time been trying to put in practical operation. The new pan is cheaper, simpler, crushes faster and is less liable to get out of order than any hitherto offered to the public. Mr. Hepburn, the inventor and patentee, is one of the most skillful and ingenious machinists in the State, and we are glad that his labors have been crowned with success. Large numbers of the new pans will soon be in operation.—*Calaveras Chronicle*.

MR. LOCHER, of the Oroville Foundry and Machine Shop, has invented and made a model of an agricultural locomotive, and has applied for a patent for the same. In its present shape it is a steam plow, although a reaper, sawmill, or any other labor-saving machinery may be attached to it.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Markleeville *Miner*, March 28th: The Superintendent of the Morning Star Mine, after the strike into the ore, a week ago Thursday, went immediately to work preparing a station for taking out ore, so nothing further has yet transpired in regard to the amount of the deposit found.

Mr. N. Graff, Superintendent of the Tarshish mine at Monitor, is making a series of experiments to test the system of extraction by chlorination upon the ores of the Tarshish and that vicinity.

From lack of economy, in reduction of ores, it is estimated that the aggregate loss on the production of bullion in this country for the present year will reach the sum of \$225,000,000.

Mr. Pettis, the contractor, has added a track and car to his facilities for getting ahead. Three shifts of workmen are putting the thing along as fast as it is possible to be done.

Amador County.

Ledger, April 4th: Work will be resumed upon the Blue Jacket mine in a few days.

We were shown, last Wednesday, some as fine quartz as we ever looked at, taken from the bottom of the Coney & Bigelow shaft. It showed free gold running through it, and was completely studded with sulphurets. The vein from which this rock was taken is now 12 feet wide, and enlarges as they go down on it.

Alvinza Hayward, one of the oldest and most successful of Amador's quartz miners, has disposed of all his interests in this county, and left us.

Two or three weeks ago, we noticed that placer diggings had been discovered on the ranch of Mr. Bigelow, residing about three miles above here, on Jackson creek. That gentleman informs us that the claim still continues good—yielding \$8 per day to the hand for every day's work done on it.

The Coney & Bigelow mill, at this place, having had 10 additional stamps added to it, is now pounding away, everything working to a charm. They are running 16 of the stamps on rock taken from the Kennedy mine, and ten on rock from their own mine.

The chlorination works, at the Coney & Bigelow mill, will be put in operation again next week. They have a good quantity of sulphurets on hand.

Dispatch, April 4th: A few days since, a mineral was discovered in some decayed quartz situated in a gouge coursing along a vein of quartz from six to eight feet wide. After calcining this gouge, a metallic substance was obtained, which, on being tested by competent judges, was found to be silver. The site where the silver was found is on the southeast base of Butte Mountain, near the head of French Gulch. Since this discovery, some Portuguese have opened up a claim richer still, which had been prospected over a year since, but not knowing what mineral the rock contained, they consequently did not work it long. After seeing the product of the new discovery, they saw a similarity between theirs and that, so they immediately re-located, and are now engaged in opening up.

A placer mine north of Clinton, owned by Whitmore, Spagnoli & Pitcher, has been averaging as much as \$8 per day to the hand since it was opened. We had the pleasure of seeing one of the nuggets, which was as large as a quail's egg. It is now being worked night and day. Another claim, rather east of Clinton, owned by J. W. Hutchins & Co., has a very extensive surface sluiced off. It is a hank of some 20 ft. in depth, and has more or less gold all through it.

It is reported that the Mahoney mine has been sold for \$250,000.

The Butte Basin Co's claim is progressing finely. The shaft is now down over 180 feet from the platform on which the dirt is dumped. The last few feet has been hard ledge.

Philip and George Cleich, after sinking several feet on their vein, have struck rock of which six pounds yielded four ounces in gold. This would be a yield of 20,000 to the ton of rock.

Nearly, probably quite, 300 tons have been delivered to Coney & Bigelow for crushing, from the Kennedy mine, at an expense of \$1.10 per ton to the proprietors.

Butte County.

Marysville *Appeal*, April 5th: On Friday we were shown specimens of gold-bearing quartz from the ledge of James Andrews, which certainly contains 90 per cent. pure gold. The ledge is located some three miles east of Buffalo Ranch, in Butte County.

Calaveras County.

The Whisky Slide correspondent of the *Chronicle*, of April 4th, gives the following items: There are many good claims in this district, and they have been worked with decided success during the past winter. Antone, Rogers & Co., on Hynes' Gulch, are making from \$5 to \$8 per day. Pasqual, Noel & Co., on the same gulch, have made, on an average, \$5 per day to the man all winter. McIntire & Co's claim looks well, and they expect to clear \$8 per day to the hand. Mr. Laden showed me a nugget that weighed \$53, that was taken from his claim on Donley's Flat. This claim has proved to be one of the richest in the district. On Wet Gulch the miners are all doing well. Two men, Augustine and his partner, on Horse Power Gulch, cleaned up \$500 in less than one week. On Music Gulch, French Peter & Co. are doing well; they picked up two nuggets, the other day, worth \$102. There are other companies making fair wages.

Inyo County.

A correspondent of the *Esmeralda Union*, writing from Independence, Inyo Co., says: In the Inyo District some exceedingly rich gold-bearing ledges have been discovered, and one company is in successful operation, running two 12 ft. arastras by water power, on the Owens River, at the Bend City bridge. The arastras work about 2½ tons every 24 hours, which will yield \$50 per ton, the gold being remarkably fine for quartz gold. Some of the gold has been assayed and went \$19 per oz. Several other parties are now prospecting in the Inyo mountains and have found other ledges which look equally as well. The ledges range from 6 inches to 2½ ft. in thickness, and all well defined.

Another important discovery has been made in the Alhambra District, twelve miles south of this town. Thomas Passmore and some others have discovered quite rich placer mines in some of the ravines in the above named district, and have been engaged for some time past in digging a ditch to carry water for sluicing purposes. Prior to commencing the ditch they worked with rockers, and averaged to the hand \$6 per day of 6 hours. I have seen the gold taken from those diggings, and know it to be veritable placer gold, and have no doubt but what the diggings will prove more extensive than at present supposed. I have seen one piece or nugget of gold taken from these mines, worth \$14.

Dr. Delevan writes from Cerro Gordo to the *Virginia Enterprise*, of April 2d, as follows: Parties have already arrived in the camp from San Francisco, have secured mines, and are about erecting furnaces. Those who have thus become interested in the mines of the country are men of much experience in smelting silver ores. They will erect large and lasting furnaces. The clumsy little furnaces become so burned out after running 12 hours that it is necessary to allow them to cool off in order to repair them. The Doctor says a large amount of silver will be taken out of the mines in this vicinity during the coming summer.

A correspondent writes to the *Nevada Gazette*, of April 6th, from Cerro Gordo, as follows: The mines of this district are principally silver, and, in most cases, very rich, when compared with mines of other camps in this region of country. The ore from some assays as high as \$2,000 a ton, many of them averaging from \$500 to \$700 a ton; but, of course, there are others which are far inferior.

Kern County.

Havilah *Courier*, March 14th: The severity of the past winter has left its impress upon mining operations in this part of the country. Whilst active operations were necessarily impeded to no inconsiderable extent during the late rainy season, the disabilities under which miners have labored have not had a dispiriting effect.

The Burning Moscow shaft has been sunk about 70 ft., and something like 150 tons of excellent rock has been extracted. The mine was sold a few days since to Messrs. Hammel & Denker, of the Bella Union Hotel, Havilah, for \$10,000. The new proprietors intend to set to work energetically in developing the mine.

Mr. Kneadney's mill is going again after a temporary suspension, caused by injuries to the road leading from the mill to the mine.

The St John mine is doing very well.

The mill near town, known as the Hate mill, has been bought by Rogers, Keeney & Bridger, and is being removed to Sagedale for the use of their mine at that camp.

Mariposa County.

Gazette, April 3d: A colored man, known by the name of "Smithy," one day last week, was lucky enough to find a nugget in prospecting below town in the main creek. There is some quartz mixed with it. The

entire piece weighs \$72, and it is supposed that the yield of gold will be \$50.

Mail, April 6th: The mine and mill of the Onkes & Reese Co., continue to work to great profit. The mine is looking better than ever before. They are running a drift on the Blue Lead, and at a distance of 25 ft. from the shaft, the vein is enlarging, and measures at that point four ft. in width. The rock is very rich, the richest yet taken from the mine, and is regarded by experts as equal to any ore worked in any part of the State. Everything about the works is extremely favorable, and the company contemplate putting on an increased force at an early day.

It is reported that the Mariposa Co. will immediately commence operations on the Princeton mine and mill, having engaged the services of Mr. Rice, a well known and able engineer.

Nevada County.

Transcript, March 30th: The company which has for some time been prospecting the old Wagoner ledge, near the Half Mile House, after having run a tunnel and sunk a shaft, have found that the ledge prospects well, and the parties propose soon to erect hoisting works and open the ledge for work by means of an incline.

April 2d: The New York Hill Co. at Grass Valley, have increased the capacity of their mill to twenty stamps, and expected to start it up yesterday. The ore in this mine is looking first-rate.

April 3d: A French company is engaged in putting up extensive sulphuret works near Canada Hill, where sulphurets will be reduced by a new French process.

Gazette, April 1st: An immense slide occurred in the claims of Dr. Farnham, at Chalk Bluff, a week or ten days ago, filling up the drain tunnel and causing a suspension for a time of sluicing operations.

April 2d: A North San Juan correspondent writes: Some of our mining companies at this place and vicinity cleaned up last week and realized handsomely.

The celebrated Buckeye claims of Evans & Co. paid for the month's operation \$24, 750.

The Yuba claims at Manzanita, owned by Messrs. Whiting, Chiou & Co., realized, gross, about \$8,000. This was the first run made by that company since the completion of their tunnel, and they are as yet hardly in to their paying gravel.

The claims of Bowen & Morgan on San Juan Hill proper, realized to the owners, after a three weeks' run, nearly \$5,000.

The Golden Gate claims, also on San Juan Hill, cleaned up sufficiently well so as to divide among the owners about the same sum.

Grass Valley *National*, March 31st: The 20-stamp battery of the New York Co. will start into operation to-morrow.

Our custom mills are busily engaged in crushing rock from various leads near town and vicinity. At the Gold Hill mill we notice this morning rock from Seven-thirty ledge, near Deadman's Flat, in the vicinity of the Legal Tender Co's ledge; also rock from a ledge between Spring Hill and the Eureka mine; also rock from the North Star Co's claims being worked on shares; also rock from the Rising Sun lead, near Colfax, and waste dirt from Massachusetts Hill.

April 1st: The Moore & Taylor claim at Gold Run cleaned up lately, after a run of 15 days, \$8,008.

Grass Valley *Union*, March 31st: Chinamen seem to be the men who are most exercised about the mineral region being brought into the market. They are rustling to find friends who will swear out 40-acre tracts for them, and are generally posted about the way American men are managing the public lands.

April 5th: The Wisconsin mine is now being worked on the fourth level 300 feet deep, and shows beautifully in free gold and sulphurets.

Placer County.

Amhurst *Herald*, April 4th: Mr. J. J. Reed has shown us the gold taken from 100 pounds of quartz from the Morning Star claim on the Ben. Higgins place. The specimen will reach at least \$90 per ton.

Dutch Flat *Enquirer*, April 4th: The last lot of cement run through the Baker Bro's arastras, yielded at the rate of about \$13 per car load, or about \$26 per ton.

The Queen City are engaged in relaying their pipes and sluices preparatory to commencing to wash.

Water was turned into the Yuba Ditch this week for the first time during the present season.

The old Boston claim, after a run of 16 days cleaned up on Thursday 144 ounces of gold.

The Dutch Flat Co. cleaned up on Thursday last, after a run of 16 days, about \$3,000. They did not clean up the boxes in the tun-

nel, and it is estimated that nearly \$1,000 are in them.

The Chinamen are the only parties mining in and around Green Valley, on the north fork of the American River. We learn that they are taking out a considerable quantity of gold. The miners along the north fork are making preparations for a vigorous season's work.

On Friday, Messrs. Snyder & Deverly took from a single crevice in their claim in Humbug Cañon, 40 ounces of gold. The miners are working very briskly in this section, and are meeting with good success.

Stars and Stripes, April 2d: The following is from Gold Run: Moore & Taylor, after 15 days' washing, cleaned up \$6,200. The Gold Run claim owned by Kinder & Stewart, after a run of 19 days, cleaned up \$3,012. The Shannon Co., Barney Fitzpatrick, realized \$4,100 after 27 days' washing. A company is about to be organized for the purpose of running a tunnel from Cañon Creek so as to strike a deep channel from 100 to 200 feet below the present wash.

Plumas County.

Quincy *National*, March 21st: The quartz interest in and around Indian Valley, seems to be looking up. Judkins & Kellogg, at Round Valley, are crushing, and doing well. Bidwell's mill is running steady, and the results are far ahead of their expectations.

Mr. Padeu has recently discovered some rich ground in the vicinity of the old Mus-sac Gulch. The claims are extensive, and judging from the prospects, the company expect to make half an ounce to the hand per day.

Turner, Rice & Co. at Black Hawk, have about got their flumes completed, and will commence piping in a few days.

Messrs. Bachelder & Viets, the owners of the Green Mountain ledge, near Cherokee, are crushing some of the best paying quartz we have heard of. The average yield of their rock is \$37 per ton.

San Bernardino County.

Guardian, March 28th: The season for placer mining in this locality, having duly arrived—that is, when the ravines are supplied with water—we find our industrious classes are applying themselves to prospecting new fields of labor, or improving those already known and thoroughly tested.

Sierra County.

Downieville *Messenger*, March 21st: The Johnson ledge, near the Docile, is proving very rich.

The owners of the old New York claim, near Alleghany, recently found a quartz boulder which contained about \$1,000 worth of gold.

A small cave which took place in the Docile mine a few days since, brought to light about 1,500 worth of specimens.

Same, April 4th: A contract has been let to run 50 ft. of tunnel on the Wehe ledge, situated just east of town.

The miners engaged in working on this branch of the Yuba are taking out good pay. The prospect is that the present mining season will be a prosperous one.

Yuba County.

Marysville *Appeal*, April 5th: The Smartsville Consolidated Hydraulic Mining Co. have filed their certificate of incorporation, for the purpose of mining at Sucker Flat.

ARIZONA.

Prescott *Miner*, March 14th: Jackson McCrackin, of Walker's district, head of Lynx Creek, was in town during the week. He informed us that owing to mud and snow, the miners are unable to get quartz hauled to their arastras. As soon as teams can get around, several miners will start in to hauling and grinding ore.

All the quartz ledges now being worked upon in this vicinity, promise well. The placer miners continue to get good pay for their labor, and the utmost confidence is expressed in the ultimate success of our mines.

The copper mines on William's Fork, on the Colorado river, in Yuma county, this Territory, are, just now, yielding largely. There are nearly 200 men now employed by the Planet, Great Central, and Springfield companies, and next to Wickenburg, it is the liveliest camp in the Territory.

COLORADO.

Georgetown *Miner*, March 19th: Richard Symmons is now raising ore from the Parr lode. Work on the Elijah Hise lode was resumed last week. . . . The Baker Company shipped over 700 ozs. of silver bullion last week. . . . Mr. Tucker has purchased an interest in the Eclipse lode. . . . Parties are at work developing the Dunderburg lode on Brown Mountain. . . . Prospecting for silver lodes in Boulder county is being successfully prosecuted. . . . The New Boston tunnel has crossed the Sam Holmes lode, showing a crevice 10 ft. wide, and every indication

of a good vein.... The east shaft of the Hunkadorn lode is now down 50 feet and there are strong indications of a fine pocket of ore in the vicinity.... Johnson & Haskins have struck a promising lode in their tunnel and are now running a drift upon it. The crevice is six ft. wide.... Work on the Wm. Penn lode has been suspended for the present.

Preparations are making for actively working the Wm. B. Astor lode the coming season.... Messrs. Fisher & Fritz are actively working the Sonoma lode, on Griffith Mountain. They have at their store a fine specimen, about two ft. in length and 10 in. in thickness, of sulphuret and galena ore from this vein.... Work on the tunnel being driven into Columbia Mountain, is progressing favorably.

Geo. T. Clark & Co. have shipped this week, 877.96 ozs. of silver bullion, coin value \$997.75, currency value, \$1,297.16. This is from the works of Garrett, Martine & Co.

Central City Register, March 19th: The Ophir Co. are taking out about 14 cords of ore per week, and running 12 stamps upon second quality.

John D. Peregrine puts his 18-stamp mill in motion to-day upon the rich ores of the Kirk and Washoo lodes.

Messrs. Grant & Langhand sluiced out in two hours one day last week from their claims on South Clear Creek 37 pwts. of gold.... The proprietors of the Fairmont lode in Hunkil Gulch are going to commence work this week. More mining is to be done this year in Clear Creek county than during any preceding year.... The California Reduction Works turned out yesterday, from $4\frac{1}{2}$ tons of ore from the Terrible lode, Georgetown, \$1,200, coin value. The average was \$374.21 per ton.... Fiske & Abbott are running the Chicago mill, on Clear Creek, on ore from the Adeline lode.

Denver News, March 18th: On the counters of the First National Bank this morning, were two large bricks of silver weighing respectively 595 65-100 ozs. and 455 $\frac{1}{2}$ ozs., taken from ore from the Terrible lode near Georgetown by the California Reduction Works of Black Hawk.

A gentleman informed us last evening that gold had been discovered on the Greenhorn Creek, near Zan Hicklin's ranch.

During the past week the Denver branch mint has paid out nine bars of gold bullion valued at \$4,463.18 in coin.

Central City Herald, March 18th: John Remine showed us 15 ozs. of nice gold which he got from three cords of Pierce ore. The ore was crushed in Mr. Fiske's mill.

Mr. Kenyon has his desulphurizing furnace in order and running. He is working on ore from the Pewabic lode, Russell district.

The U. S. Banks lode is situated in the vicinity of the celebrated Hoosier lode. From $1\frac{1}{4}$ tons recently treated at the California Reduction Works, 178.70 ozs. of silver was obtained. The ore was not selected;

Garrott, Martine & Co. have taken a silver brick, weighing 179.90 oz. and valued at \$244, from one ton of ore from the Silver Eagle lode.

Warren Hussey & Co. shipped this week 404 ozs., currency value, \$9,000. Of this the Bobtail Co. 49 ozs., North Star 65 ozs., and the Briggs Co. 147 ozs. Geo. T. Clark & Co's shipments amount to \$7,000 currency.

We have seen a report of a run lately made on two or three tons of Young America ore by the California Reduction Works. The ore assayed between \$90 and \$100 per ton; the amount saved was at the rate of \$80 per ton. We have also seen a report from $4\frac{1}{2}$ tons of Terrible ore which yielded 1,536 ozs., coin value, \$1,290.62. The cost of treatment was \$600 in currency.

DACOTAH.

A correspondent of the Sweetwater Mines of March 21st, writing from California district, eight miles northeast of South Pass City, says: Notwithstanding the inclemency of the season a great deal of prospecting has been done. New discoveries are continually being made, both in gulch and quartz diggings. Messrs. Shively, Rice and Chace lately discovered and located a very fine ledge called the Kearsarge. It is three ft. in width and remarkably well defined. The same party located another ledge a short distance from the Kearsarge, running parallel with it, and supposed to be equally as good. Another lode was discovered by Mr. Bennett on the 25th of February, but he has not been able to do much as yet towards developing it. Enough work, however, has been done on it to demonstrate its being as rich as the Miners' Delight ledge. I have seen \$16.50 taken from 22 lbs. of its rock, worked by hand mortar process. Many new ledges have been recently located.

An Idaho paper says: Mr. N. W. Earl, who left Salmon last fall for Sweetwater, does not give a very flattering report of the country. After being there two months, he says as to its being a mining camp, he fails to see it in that light. He says the whole country was staked into leads, of which he does not entertain a very high opinion. There are no placer mines that have yet been discovered that will pay. Provisions of all kinds are \$1 per pound; flour \$35 per hundred. He sums up his opinion of the camp as follows: "To make a long story short, I wish I was back in Salmon diggings; I would then have some chance of making my board next season, and here, where I am, it looks rather slim."

IDAHO.

Owyhee Avalanche, March 28th: The news concerning the war on the mountain, is the same as that published in last week's Press under the heading of "War in Idaho." Later despatches state that the parties have withdrawn their forces, and agreed to submit their claims to the courts. — (Eds. Press.)

The Oro Fino Co. have struck another chimney of rich ore in their lower drift between the south and middle shafts. The ledge is about four ft. wide where this new strike was made. The ore is of a dark brown color, in many places tinged with green, and in almost any of it gold can be seen sticking out. It is thought that this chimney will yield a larger quantity of rich ore than was ever before found in one place in the mine. The quartz is being hauled to the Webfoot mill, which is pounding away night and day.

Wells, Fargo & Co's shipments of bullion from this place for the month of March, up to date, amounts to \$147,000, coin value.

The shaft on the Allison mine is down 110 ft. where the ledge is four ft. wide, all solid quartz.

The Boise Statesman tells of a late quartz discovery on P. J. Peffley's ranch, five or six miles up Cottonwood Cañon, in Ada county. A shaft ten feet deep and eight square has developed a ledge of $3\frac{1}{4}$ feet width, ore from which has assayed about \$145 per ton. A number of claims have been located, and the thing has created some excitement in Boise City and vicinity.

MONTANA.

Post, March 21st: From Sterling we have the following items: McAndrews, Wann & Co. have a gang of men at work on the western portion of the Boaz lode and the shaft is now 110 ft. deep, with a well defined crevice. The same company is prospecting on the Atlanta and other lodes with good results. Snyder & Co. are down 115 ft. on the Goleonda, and the indications are thus far very good. Crawford & Co. have a shaft 100 ft. deep on the Primrose. They sank 100 ft. without any quartz in sight, but perseverance was at last rewarded by a good vein and the quartz very rich. Russell Kearney & Co. are steadily at work on the Brookfield, and have a crevice about three ft. wide from which they are getting rock which looks remarkably well.

It is also reported that prospects as high as a dollar to the pan have been obtained on the recent discovery known as Daney's Bar, 12 miles from this city.

J. H. and W. D. Mitchell yesterday sent up from their arastra in Granite Gulch 71 ozs. of retort, principally gold. The run was made from Alameda rock, yielding at the rate of \$54 per ton. They are now crushing ore from the Black lode in Brown's Gulch, roasting the rock before reducing, and it is thought it will yield well. The Messrs. Mitchell have two water power arastras, capable of reducing two tons per day, and have done good service in proving the richness of several leads. The Brown's Gulch district contains a number of leads of good width and known richness.

Hussey, Dahler & Co. have received 52 ozs. of gold retort, valued at \$1,222 currency, the product of Wood's mill, at Bannack.

We saw last week in the office of Wells, Fargo & Co., a nice little silver brick which was on its way East as a specimen. It weighed 25.50 ozs., was .967 fine, and was valued at \$29.38. It was taken from 287 lbs. of ore out of the Van Timmons lode, in Flint Creek. One ton of the rock at the above rates would yield \$204.28.

The Boulder correspondent writes: Claims hardly deserving the attention of the prospector a few weeks ago are to-day high up in figures. Alexander Hamilton, alias "one of the Scotties," sold yesterday No. 3 below discovery in said gulch for \$650, to S. M. Wessels. Other claims have changed and are still changing hands. Boomerang Gulch apparently holds its own; work seems to make the main change in it. The gulch at the head, and one mile west of Muskrat, is still worked and prospected. Men of reliability, engaged in it, speak very highly of their prospects so far obtained.

About 22 miles from here, near the head of Boulder, rich diggings are reported.

Deer Lodge Independent, March 13th: The James Stuart mill, at Philipsburg, will soon close down for extensive repairs. It is the intention of the proprietors to put in an extra boiler and add 10 more stamps, making 20 in all. Mr. James Stuart informs the editor that the St. Louis & Montana Co. will resume operations at Argenta.

NEVADA.

Esmeralda.

Virginia Tresspass, April 4th: We learn from Mr. Mann, just in from Pine Grove, Wilson district, that mining is progressing most satisfactorily, and that a large amount of bullion will be dispatched thence in a few days. The Pioneer and Wilson's mill are running with a full supply of rock, which is said to be yielding more metal than ever before. In fact, everything in the region of the mines is looking extremely prosperous.

Reese River.

For about a month we have not received a copy of the Reese River Reveille. We are unable to give the reason, but presume that the fault is in the mail, as no paper has heretofore been more regular in its appearance upon our table than the Reveille. The following items from that paper of April 1st, we have clipped from the Tresspass:

Bonlt & Stetefeldt received to-day 6,100 ozs. of bullion for assaying.

Two bars of bullion arrived in this city yesterday from the mill of the Combination Co.

The mill of the Belmont Co. at Belmont was reopened on Monday last, and is again crushing ore.

There were reduced at the Keystone mill, and melted and assayed by J. R. Murphy during the week ending 31st of March, 20,194 ozs. of crude bullion from the Keystone mill since it was reopened, week before last. The product of bullion in this region was materially lessened by the closing of that fine mill for several months, and now that it has resumed work we may look for a large increase in the monthly shipments.

Silver Bend Reporter, March 28th: About the only company now here engaged in taking out ore is the El Dorado South. At the bottom of the incline, 130 ft. from the surface, a level has been run south along the lode. This is now completed a distance of 30 ft., and discloses an excellent quality of ore all the way, but at the extremity just reached, it exceeds anything yet found in the mine, and shows a large body of as rich ore as has ever been raised from any mine in this section. Upon this mine there has recently been discovered a splendid body of chloride ore upon the surface, about 200 ft. south from the main incline.

Prof. Vincent, while here a few weeks since for the purpose of examining and reporting upon the mines of the Belmont Co. in the interest of London capitalists, selected about a ton of ore from the dump of the Transylvania for the purpose of testing its yield by a perfect process of working. We learn by the Reveille that the ore was reduced at the Keystone mill, and gave a pulp assay of \$392 of silver per ton. The lot of ore was not closely assorted, though it is not pretended that it is an average of the ledge.

Since our last issue Paxton & Co. have received for shipment 17,055 ozs. of refined bullion.

The Palmetto correspondent writes: Col. Oatherwood, of the New York and Silver Peak Co., has arrived and put a small force of hands at work on the Champion. The weather is yet too severe to permit vigorous work on our mines. The New York and the Silver Champion are the only two mines being worked at the present time. I am informed that the Kentucky and the Dickson Cos. will commence work on their mines early in the spring. The Kentucky mine presents a fine body of mineral of nearly six ft. in width from the surface to the bottom of the incline. The New York and Red Mountain Co., operating at Silver Peak, are progressing finely with their mill.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Enterprise, April 2d: About 70 men are employed on the Overman mine. Good ore continues to be taken from all parts of the mine. The amount raised for the month of March was 3,500 tons.

There was shipped from the Bank of California yesterday, three fine bars of bullion from the Occidental mine—value nearly \$5,850. This is about the usual yield of this mine, run as at present, and is the result of nine days work at a 23-ton mill.

April 3d: On the Gould & Curry ground some Mexican miners are at work. They have run a tunnel from a point a little

above B street, and are taking out some very fair ore from the ledge at a depth of 20 or 30 ft. below the surface. North of the old Savage hoisting works, on the Savage Co's ground, a shaft has been sunk, and paying ore is being taken out. Other parties are employed at various points, and upon the Chollar croppings work has been going on nearly all winter. There is a vast amount of good ore yet to be found in the croppings of the Comstock.

April 4th: Wells, Fargo & Co. shipped from their offices in this city and Gold Hill during the past week, 6,240 lbs. of assayed bullion, valued at \$175,781.30.

April 5th: The Gould & Curry Co. have received a supply of fuel, and are about to start up their hoisting works, which have lain idle for the past three months, though during this time the mine has been worked, the ore extracted being taken out through the lower tunnel in cars. They now have come-at-able in the mine, about 5,000 tons of ore.

The amount of bullion shipped from this State last month was, according to the books of Wells, Fargo & Co., and the most reliable estimates of the amounts shipped from outside districts, \$1,018,977.67.

The Savage Mining Co. intend putting in a line of telegraph wires from the top to the bottom of their main shaft.

OREGON.

Dalles Mountaineer, March 21st: On Elk Creek, a tributary of the John Day river, a number of ditches have just been completed, which will furnish the diggings with plenty of water the entire season.

The same paper of March 28th, says: The news from Canyon City is unimportant. Miners are at work in good spirits after the hard, cold winter.

The Walla Walla Statesman says: Reports from the new mining district (Shasta mines) continue favorable. Some 200 men wintered in the mines, and rumor has it, took out a large quantity of treasure. An old miner assures us that the district will afford profitable employment for 10,000 men. A large number of Walla Wallians have already left for the new diggings, and we hear of still larger numbers who are preparing to follow. A correspondent of the same paper indulges in quite a different strain. He says: "Coming down to stern reality, and looking facts in the face, the country is spotted, and good claims are few and far between. There are some rich, very rich claims here, and will probably pay thousands of dollars the coming season; but there are a thousand poor claims here; claims that will not pay 1,000 cts. clear of expenses, to one to the contrary. I have seen no one here yet willing to venture an opinion for or against. They are all doubtful, even including those who are called the 'lucky fellows.' In my opinion, this place is but a repetition of Big Bend and Lemhi; and will cause as much disappointment and broken men as either of those two places."

WASHINGTON.

Olympia Transcript, March 21st: From what we can learn, the gold diggings on the sand beach at Gray's Harbor will not justify a big stampede in that direction yet awhile. They are situated on the southern beach of the harbor, below John's river, from which it is supposed the gold has drifted, and up which river a party of miners are now prospecting. Some fine gold has been taken out on the beach, in small quantities, the dirt being washed by water raised by pumps, but we believe no large deposits have been found.

AERONAUTIC SOCIETY OF GREAT BRITAIN—A CHANCE FOR THE AVIATOR.—An exhibition is to be held in June next, at the Crystal Palace in London, for the display of apparatus connected with aeronautic science. Ample opportunity will be offered for experiments. The Shipwrecked Mariners' Society have offered a prize of £50 for the best form of kite, or other aerial arrangement for establishing a communication between a wreck and the shore, or between two vessels at sea. Those machines of the kind which compete for this prize, will be entered at the above named exhibition. Light engines, and other apparatus for aerial use, will also be entered. It is said that a number of scientific gentlemen in the United States have also formed a similar society, and will correspond, through a secretary, with this association, and will aid in the exhibition.

The best place to get a good pair of spectacles from plain glass to Brazilian pebble, is at Muller's, 205 Montgomery street.

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.

O. W. M. SMITH. W. B. EWER. A. T. DEWEY.
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WRITERS should be cautious about addressing correspondence relating to the business or interests of a firm to an individual member thereof, whose absence at the time might cause delay.

Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.
Mr. C. T. Raney is our duly authorized agent for Sacramento County. Nov. 23, 1867.

Dr. L. G. Yates is our duly authorized traveling agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 16, 1867.

San Francisco:

Saturday Morning, April 11, 1868.

Notices to Correspondents.

SPECULATOR—Taking the elaborate tables made by the Hale & Norcross Co. as a guide, it appears that the loss of gold sustained in the extraction from its ore by the ordinary Washoe pan mode of amalgamation amounts to 14 per cent., and 48 per cent. of the silver, making an average of the two amounting to thirty-five per cent. In plainer words, of four tons of ore, containing \$100 worth of silver, or \$25 per ton, only \$52 are beneficated under the present system, \$13 per ton only being obtained in place of \$25;—an enormous loss, and would long ago have been investigated, owing to its startling magnitude, had it not been that this great deficiency is covered, in a large measure, by the larger percentage obtained from the gold present. As, however, with the exception of certain cases not of great magnitude, and susceptible of explanation, the proportion of gold in the ore decreases as the mine descends, as compared with the amount of silver, we cannot hold out any hope that the current average loss on beneficiating the silver, can ever be much reduced whilst the present system is adhered to. Any small improvement that may be possible on the pan mode, will inevitably be counterbalanced by the increasing amount of silver found in the ore as the mines are developed in depth, and so militate against any reduction of the average loss. A thousandth part of the money invested during the last six months, with the object of inflating or corraling certain stock, if judiciously expended, would most probably have put the market price of all gold and silver mining stocks greatly above the highest figures they ever obtained, with the exception of certain market corraling cases.

CORNU-ARGENTUM.—Horn, or chloride of silver can be reduced to the metallic form by melting with lead alone, but much more readily and with less loss, by adding a small amount of alkali, such as potash. Were it not for the loss just alluded to, chloride of silver void of earthy matters mixed with granulated lead, might at once be cupelled economically. In doing so, a part of the chloride, however, will inevitably sink into the cupel, before the lead decomposes the chloride, and another portion during the same interval, volatilizes. Berthier found that when one gramme of perfectly dry chloride of silver had been enveloped in ten grammes of leaf lead and placed on a cupel, that when submitted to heat, a perfect metallic bath was formed, which for several minutes appears dark and tarnished, which slowly becomes clearer, and after some time assumes the brilliancy of melted lead. It was found that when the fact last alluded to occurred, the clean button of lead remaining weighed 7.6 grammes, which, on being cupelled, was found to have lost 0.22g of silver, or nearly one-fourth, which had disappeared as above described.

BRIMSTONE.—San Luis Obispo.—Sulphur may be found in any geological formation. In Sicily it occurs in beds of blue clay, said to belong to the same geological formation with the gypsum beds of Paris, and, consequently, more recent than the cretaceous; in Swabia and Hungary it is found in veins traversing granite, and in similar rocks at Quito, South America. It is also common in the fissures of lava.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

Government Titles to Placer Claims.

Ever since the passage of Mr. Stewart's bill, providing a way for securing Government titles to quartz mines, a want has been felt for some similar law for the securing of titles to placer claims. A bill to accomplish this has been introduced into the lower house by Mr. Johnson, of this State, in which provision is made for the purchase, at a nominal price, of claims to which there is no adverse title, in exact accordance with the rules and regulations of the mining districts in which they are situated; that is to say, the owner of a cement, hydraulic, or any gravel claim, may obtain title to just so much land as the mining laws of his district concede to him, and no more. The effect of such a privilege would not give him an actual title to his claim, but would only secure it against jumpers and interlopers, and give it a more definite negotiable value. With proper restrictions, such a bill would be of great benefit. It should fix some limit for the size of single placer claims hereafter located, taking perhaps the medium allowance under local regulations.

Some law of this kind, fully protecting all existing rights, and carefully guarding against any attempts at monopoly, would meet, we think, with almost universal favor among miners. Of course, care should be taken to require a certain amount of work to be done annually; and any possibility of an undue accumulation of ground in the hands of any one company, to be held in perpetuity, without working, should be carefully guarded against.

The opposition which existed a few years ago against any plan for giving titles to mines, appears to have been pretty generally abandoned; and the opinion is now quite general that with the security which good titles would give to mines, there would be a large increase of investment in such property, and a proportionally improved development or that portion of our natural resources.

The law for acquiring titles to quartz mines has been almost universally acquiesced in, even by those who do not care to avail themselves of its privileges. The fact that such a privilege has been within the reach of all, for two or three years, and that no evil effects have been discovered from its existence, furnishes a very good argument for the creation of a similar law with regard to placer mines. There is no doubt that most of the placer mining districts, now languishing for want of capital for their development, would be advanced to prosperity by the enactment of a law which would render capital so invested safe from molestation under the security of a United States guaranty—even though it be not a title in fee. If such a law should be passed, miners would find their complications with railroad grants greatly simplified and improved; as under it they would have a direct way to obtain a title, without being obliged to travel through the circumlocution office of a privileged corporation. Should any of our miners differ from the opinion herein expressed, we should be pleased to hear from them—otherwise we trust it will be taken for granted by our delegation in Congress, that the miners of the Pacific coast desire the passage of a law giving titles to placer, as well as to quartz mines.

DR. NEWCOMB'S SHELLS.—It is probably known to our readers that Dr. Newcomb, of Oakland, has a cabinet of shells, which is said to have but two equals in the United States. It is reported that the Cornell University of New York have made a proposition for its purchase. We hope it will not be allowed to go out of our own State. The University of California ought certainly to have it; and we hope that Dr. N's answer may be delayed until the Board of Regents can consider the propriety of making a proposition for it in behalf of that institution.

"Material Wealth of California."

The above is the title of a valuable work which has already been announced, and which is now in the hands of the binder. We have been favored with the examination of some of the advanced sheets, from which we are also permitted to make the subjoined extracts. The work is designed to present the most recent, comprehensive, and elaborate treatise upon the history, geography, geology, natural history, population, industry and resources of the State which has yet appeared. Unusual pains have been taken to render the work a standard authority on all the subjects which it embraces. In pursuance of this end, the author has drawn upon every reliable source of information, and has employed the best ability in the State to assist him in original researches.

The work embraces a great variety of subjects, among which we may mention the following: To history the author devotes 70 pages; geography, 20 pages; statistics of counties, 237; climate, 21; agriculture, 43; geology, 37; zoölogy, 67; flora, 27; mining and metallurgical processes, 34; mines and mining, 34; manufactures, 47; San Francisco, 23. A large amount of space is also devoted to various miscellaneous topics, such as immigration, population, educational matters, railroads, petroleum, ship-building, etc., etc. The book will contain 700 large, imperial octavo pages, beautifully printed on heavy, white paper, in the highest style of the art, and will be accompanied with a valuable colored map of California and Nevada. The author makes especial acknowledgment to Dr. J. G. Cooper, Dr. Henry Gibbons, and Mr. J. S. Silver, respectively, for valuable assistance in the departments of zoölogy, climatology and agriculture. Especial mention is also made of Professor Silliman, Dr. Louis Landsweert, Messrs. Henry De Groot, Monroe Thompson, T. A. Blake, W. A. Goodyear, F. Bret Harte, and Wm. H. Knight, as having furnished important aid in the preparation of material for the volume. We make the following extracts from the sheets before us:

CHANCES STILL GOOD—IMPROVED CONDITIONS.

If, however, we compare the past with the present, and carefully canvass the advantages and disadvantages incident to both, it will be found that the chances for success do not preponderate so greatly in favor of the former as this class of persons are apt to suppose. In the first place, the cost of living, as above stated, was then enormous; the price of every article, whether of luxury or necessity, being out of all proportion to those now prevailing. Owing to a lack of wholesome food, medical attendance, comfortable dwellings, and other causes incident to the times, the miner was exposed to a variety of diseases, such as scurvy, chronic diarrhoea, rheumatism, etc.—none of which are now prevalent, some of them being almost wholly unknown. Formerly, much time was lost to this class in consequence of sickness—deaths, also, being proportionately more numerous than at present. Then, also, the lives of citizens were exposed to constant danger from acts of violence, the whole country being filled with vicious and reckless men, against whose attacks none were secure in either their persons or property, etc., etc.

Taught by the mistakes of his predecessors, the modern prospector, avoiding these errors, is enabled to insure for his expenditure of labor and means, if not always more remunerative, at least more certain returns; while, as regards comfort and health, the mining community of California enjoy these blessings in as full measure as almost any other, whether we seek for them in this country or elsewhere.

ADVICE TO EMIGRANTS.

If, then, the adventurer, having discarded all speculative aims, desires to pursue the occupation of placer mining, he will do best to seek the more northerly group of counties, comprising Placer, Nevada, Yuba, Butte, Sierra, and Plumas. If a novice, and without means, it will generally be found expedient for him to work on wages, until such time as he has become familiar with the modes of operating, and acquired some knowledge as to the character of the different kinds of deposits, their methods of occurrence, and the rules to be observed in prospecting for or searching after them.

With this knowledge and experience gained, he may proceed to take up claims for himself, if, as is generally the case, any of sufficient value can be found to justify locating; or, having earned some money, he may now buy an interest in grounds previously secured by other parties, and which, if not already developed to a productive condition, may have been sufficiently prospected to enable him to form a tolerably accurate estimate of its value.

* * * Auriferous deposits that a few years ago were overlooked as worthless, now give remunerative employment to large numbers of laborers. Quartz that could not, at one time, be made to defray cost of extraction, is now making millionaires of the fortunate owners; while tailings that were suffered to run to waste, having given rise to a new branch of mining, as we have seen, now being washed with largely accruing profits.

And thus, in canvassing the future prospects of the gold mining interest of this State, we are warranted in presuming that it will continue to experience large and constant expansion through the application of the same means that have hitherto worked these results; while the business of exploring for new mines, both in quartz, the ancient river channels, and in hydraulic deposits, will, no doubt, lead to important discoveries in every direction—the field of labor, from whatever point viewed, appearing almost illimitable, and the future full of encouragement and promise.

An important collection of facts is given, consisting of statistics, etc., comprising some twelve or fifteen pages, which go to show the present profitable and flourishing condition of mining, such as must present numerous

OPENINGS FOR ENTERPRISE, LABOR AND CAPITAL.

From the foregoing facts and well verified statements, the following conclusions seem fairly deducible: that the chances for making money in the mines of California are, to the industrious, frugal, and patient, nearly as good now, everything considered, as they were fifteen or sixteen years ago; that the inducements for immigration, more especially for mechanics, common laborers, and others desirous of hiring out their services, are great—the scale of wages ranging from sixty to ninety per cent. higher than in the Eastern States, and more than a hundred per cent. higher than in the best-paid labor markets of Europe—and, finally, that the opportunities presented for the safe and profitable investment of capital are vastly better in the mining regions of this State than can be found in any other country in the world.

We shall give further extracts next week. The work has been prepared by T. F. Cronise, Esq., whose long connection with the commercial and stock journals of this city, and intimate acquaintance with the general resources of the State, has eminently qualified him for such an undertaking. It will be published by the well known and enterprising house of H. H. Bancroft & Co., who will spare no pains or expense in putting it properly before the public. The work has been stereotyped by Faulkner & Son.

THE WHEEL QUESTION.—This still occupies the columns of the *Scientific American*. That journal continues to publish very excellent demonstrations that it is wrong in the position which it has taken. After every three or four such demonstrations, it serenely reiterates the simple remark: "We adhere to one." No demonstration of its own view of the question has been attempted, unless in a single instance,—in which, making use of the diagram of a "two-revolutionist," it handles the question in a manner which must be anything but satisfactory to its disciples. The latter, by the way, as a rule, show by their style that they have not been accustomed to such discussions. All plainly confound "axis" with "axle;" having, for want of familiarity with geometrical language, no conception of it as an imaginary line,—without other magnitude than length. A few others who perceive this, attempt to show that both sides are right. These are almost as wrong as the others; for a geometrical question must be stated in language that admits of but one interpretation,—and if we can understand this one, it is so stated;—so far at least, as regards the case in which both wheels are in the same plane. And this is plainly the case under consideration by the journal aforesaid.

[Editorial Correspondence.]

Work at the Hoosac Tunnel.

WESTFIELD, MASS., Feb. 12, 1868.

Note.—It is intended to state facts as briefly as possible in this article, mainly from notes and observations made Nov. 18th and 19th, 1867. The object is to afford a more direct railroad thoroughfare, with light grade, from Boston to Troy.

[Continued from Page 229.]

THE CENTRAL SHAFT

is 12,837 feet west of the east entrance of the tunnel. Our visit to the place occurred several weeks after the sad disaster which sacrificed the lives of thirteen workmen. Their bodies have not been recovered, and are supposed to rest at the bottom under 300 feet of water. It was a desolate sight to witness the ruins of the fire, the huge hoisting machinery bent, broken, and half enveloped in snow on the bleak and dreary mountain. For twenty feet down the shaft is of circular masonry work, about thirty feet in diameter. Below this, a platform, covered with snow, shuts out all vision, save through a small opening through which a gallant workman had thrice been voluntarily lowered in the vain hope of recovering the bodies of the unfortunate men.

The size of this shaft is mainly 18x27 feet—1,025 feet to the grade; present depth 600 feet, through solid rock. Stagings are built at short intervals. The workmen had no means of reaching the first staging from the bottom of the shaft at the time the works were consumed over the entrance.

One of the agents, who went in company with another man to the gasometer to turn off the over-supply of gas, informed us that a stream of ignited naphtha immediately followed the opening of a certain door, and it was only by good fortune they escaped serious harm. He states his undoubted conviction that the explosion occurred through some unknown agency, resulting from the nonuse of the gas generating apparatus. He insists that their lantern was left at a safe distance.

The work of repairing the damages was commenced by the State in November, the contractors throwing up their undertaking. Nearly five months have elapsed since the catastrophe, and still the bodies are not recovered. We are sure that in case of a similar accident in California, public sympathy and private enterprise would soon have devised means for restoring the remains of the victims to their afflicted friends.

The steam pumping and hoisting apparatus here must have been on a grand scale;—nearly all was ruined. On reaching the grade in this shaft, headings will be run both east and west;—rock of about the same character as in the east end tunnel.

THE WEST TUNNEL

is 9,747 feet west from the central shaft, and 2,447 feet east from the west end. Between the central and west shafts, towers the highest summit of the mountain—2,504 feet above the sea level, and 1,710 feet above the tunnel. Depth of western shaft, 318 feet; size, 8x14 feet. Double safety-cages are used; power supplied by steam engines; McKenzie blower used for ventilation; a compressing cylinder is prepared for use. Two headings have been worked over 6,000 feet each way from the bottom of this shaft. This portion of the work is very wet,—over 360,000 gallons of water being discharged daily. It is in contemplation to introduce the air drills here, which will greatly facilitate and cheapen the work. A small machine shop is in operation, running a planing machine and several lathes.

The rock encountered at this shaft is similar to that found in other portions of the tunnel,—tough slate, occasionally streaked with quartz. We were shown samples at the office bearing a strong resemblance to some of our gold-bearing quartz, containing sulphurets of iron, copper, and other base metals. No considerable lode of such ore, however, has yet been discovered.

Quite a village surrounds this shaft. The dwellings are new, cheaply built, and unpainted,—like many California towns of mushroom growth.

Across the ravine, a short distance, Prof. George M. Mowbray has established a manufacturing laboratory, at an expense of \$5,000, for the production of an improved article of nitro-glycerine. We are told the State Commissioners have promised to try his fluid, and use it only on condition it proves satisfactory. Experiments are now in progress and we are promised a report of their result. We venture the opinion that machine drills and nitro-glycerine will soon be used in all the headings, and the central shaft, and that the annual progress will yet be doubled.

AT THE WEST END

we find slow progress,—only 575 feet completed, against 4,800 feet at the east end. Cause, quicksands and land-slides. Several years since, the surface of the hillside made a huge stride towards the valley, caving in the tunnel. A fresh start with the work was necessary. An oval arch,—horse-shoe shape,—twenty feet in diameter, walled entirely around with three feet of masonry, is the style of its construction. Each lineal foot takes 6,000 brick. A large amount of expensive timbering is requisite to enable the building of the arch. Small tunnels and drifts are advanced to drain the dampness from the soil as far as practicable. The work is done by contract, at an expense to the State of \$500 per foot.

PRICES OF LABOR, MATERIAL, ETC.

Mineis, working eight and eleven hours, receive \$2.25 per day; laborers, ten hours, \$1.75; machinists, \$3; board, \$4.50 per week; steel for drills, 22 cents per pound; powder, 24-lb kegs, \$4; fuse, per 1,000 feet, \$12; exploders, with 4-foot wires, 10 cents each; wood, per cord, \$5. These prices are of course paid in currency. Since the first of January a moderate deduction has been made on the above rates for labor. Although the State, in loaning its credit, unwittingly

PURCHASED THE ELEPHANT, it must be admitted that it is turning it to good account, and as a work the Hoosac Tunnel is assuming a character worthy of the pride of Massachusetts. She is prosecuting the grandest mining enterprise on this continent. Day and night, from year to year, we trust her forces will continue to work,—resting on the Sabbath, only,—until the undertaking is finished. She has claims upon the whole Union for admiration for her zeal and philanthropy. Her patronage has developed the best pneumatic drill in the world,—an instrument which, if successfully introduced into the large mining operations of the Pacific Coast alone, would add millions of wealth to those States and Territories, and the nation.

Massachusetts has freely sent her consulting engineers to visit the Mt. Ceniz, and other prominent works in Europe, where they were welcomed and afforded every opportunity for observing the most skillful work of foreign artisans. Their reports have been published and furnished free to American mechanics, who quickly added improvement upon improvement.

The great tunnel of the Alps has proceeded, under the national patronage of both Italy and France, 25,000 feet, with 15,000 yet to finish. Massachusetts more recently entered the field, and single-handed has cut through harder rock nearly 7,500 feet, and has something over 17,500 feet yet to run. In Mt. Ceniz nearly 4,000 feet advance was made in nine months,—working Sundays,—during the past year; which advancement was greatly in excess of all former work. By additional headings worked from the central shaft, the use of nitro-glycerine, and the constant improvement of workmen and tools, Massachusetts may yet be found, all things considered, outstriking the work of longer experienced Europeans.

It is supposed the entire expense of the Hoosac Tunnel may reach \$10,000,000, or more, for which outlay the State will be recompensed by cheaper freight from the West, increased thrift of a portion of her citizens, and additional taxable property.

A. T. D.

LIND'S IMPROVED JOURNAL TURBINE.—Mr. Lind, of this city, has recently made an important improvement to his Journal turbine water wheel, for which he has taken steps to secure a patent. We shall illustrate and fully describe this improvement in a week or two. In the meantime we would state that Mr. Lind is meeting with good success in introducing his wheel. Several of them are already running in the State of Nevada, and a number in Mexico. Mr. L. is now in Santa Cruz, putting in his third wheel at the California Powder Works, where, as well as at other places, we understand it is giving good satisfaction.

LUCKY MAN.—John Tobin, one of the largest operating brokers in Wall street, and now worth \$2,000,000, three years ago was a gate-keeper at one of the New York ferries.

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THE SUBSCRIBER, HAVING SERVED FOR THE LAST twenty years as Superintendent for various Companies, working mines of Gold, Copper, and Argentiferous Galena, offers his services to examine and report upon mines and mineral property. Reports accompanied by Plans, Sections and other Drawings. Also would be willing to take the management of any legitimate mining enterprise. If necessary, satisfactory reference given. Address, 14v16f H. H. SHELTON, Copperopolis, Cal.

UNDERGROUND TELEGRAPHY.—The Savage Mining Company, of Nevada, are preparing to put up wires to connect the bottom of their main shaft with the surface. The bell-rope, in present use, is constantly getting out of repair in consequence of the strain required upon it for signalling. Every break involves a large loss of time, as it is not safe to work without signals. The *Territorial Enterprise* in describing it says: The line will be worked with the same kind of a battery as is used on other telegraph lines, and will be used for striking the signals on the bell at the top of the shaft. At every station there will be placed an apparatus for telegraphing, and so simple is the operation that any miner can learn to use it in half an hour. There is nothing but a small box in which is a ring suspended from a wire, and in order to signal those above the miner has only to put his finger into the ring and pull down upon it as often as he wishes to cause the bell to strike. The apparatus is the invention of Frank Thayer, head engineer of the works, and will soon save to the company five times its cost.

GOLD IN NOVA SCOTIA.—"A. H." Halifax, N. S., writes thus to the *London Mining Journal*, Jan. 30th: "Sir—A gold yield has just occurred here, which in any other country would produce quite an excitement: 13 tons of quartz crushed at Uniacke district yielded 231 ozs. of smelted gold, or nearly 18 ozs. on an average per ton. Another lot of 43 tons from the same shaft, crushed a fortnight ago, gave 96 ozs. Sherbrooke, too, sent up early in the month a brick weighing 612 ozs., the product of one month's work on the Wellington property. The other districts just hold their own, on account of the season being unfavorable for surface labor; but great progress has been and is still making at Laurence Town, of which a detailed report by next steamer."

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The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

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ESTABLISHED [MAY, 1860.]

VOLUME SIXTEEN

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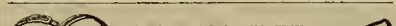
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Mining Notices.

Black Ledge Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. mar28

Chilpaneca Mining Company—District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of March, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. m28

Chalk Mountain Blue Gravel Company.—Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twelfth day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. RUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar21

Folsom Street and Fort Point Railroad and Tunnel Company, San Francisco, California.

Notice is hereby given, that at a meeting of the Board of Directors of said Company, held on the tenth day of March, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Caleb T. Fay, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the eleventh day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-seventh day of April, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Directors.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. mar11

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the nineteenth day of February, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Burke, M. J.	70	30	\$30 00
Brokaw, Jas (deceased)	162	10	20 00
Brokaw, Jas	185	75	75 00
Campbell, J. A.	205	20	20 00
Cleveland, W. H.	313	25	25 00
Kellogg, Jas	175	20	40 00
Wieglin, Chas L.	171	25	25 00
Wieglin, Chas L.	2	25	25 00

And in accordance with law, and an order of the Board of Trustees, made on the nineteenth day of February, 1868, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Olney & Co., auctioneers, 426 Montgomery street, San Francisco, Cal., on the fourteenth (14th) day of April, 1868, at the hour of 4 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street. mar23

Honest Miner Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

H. H. CROWE, Secretary.
Office, No. 223 Clay street, San Francisco. mar28

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the thirteenth day of February, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
Richard Inch	34	40	\$6 00
Richard Inch	35	30	45 00
Richard Inch	36	20	30 00
Richard Inch	38	6	9 00
Gomer Evans	273	12	18 00
Gomer Evans	311	9-16	85
Gomer Evans	333	9	135 00
John Richards	49	5	7 50
John Richards	50	5	7 50
Lewis Fisher	51	10	15 00
George Lorenz	265	1	6 00
George McAllister	214	1	6 00
Isaiah Legro	211	5	7 50
Isaiah Legro	212	5	7 50
Charles C Phillips	48	4-1/2	6 55
Wm Davidson	310	5	7 50
Wm Davidson	74	1-1/2	75
Jos. J. Gates	not issued	256	1 50
James Barron	241	3-1/2	40
Josiah Bray	124	5	7 50
C R Callender	214	4	6 00
Thos Patten	383	4	6 00
Georgiana Daley	195	2-1/2	4 10
George Marchessault	248	2	3 00
Edmund Paineche	145	5	7 50
Isaac Ayr	258	6	9 00
Isaac Ayr	258	1	1 50
A B Abin	149	5	7 50
John Gates	201	3-1/2	15 00
C H Pearce	229	1-1/2	2 50
C H Pearce	223	1-1/2	2 50
Osmond Johnson	190	2	3 00
Cle Halver	192	10	15 00
George Brode	229	5	7 50
Wm Browning	219	3-1/2	5 50
H C Johnson	323	2-1/2	3 75
John Collins	219	105	10 00
E B Harris	255	5	7 50

And in accordance with law, and an order of the Board of Trustees, made on the thirteenth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., auctioneers, 418 Montgomery street, San Francisco, on Wednesday, the fifteenth day of April, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. ap1

Jo. Lane Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. mar23

Kearns Mining Company, Kearns District, Inyo County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twentieth day of January, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Bliss, D. L.	18	200	\$200 00
Blauvelt, W. H.	22	60	60 00
Glitt, Mott & Co.	14	75	75 00
Irish, W. C.	14	215	215 00
Stead, Geo.	241	200	200 00
Van Gordon, C. H.	6	650	650 00
Unknown-unissued	1833	1333	1333 00

And in accordance with law, and an order of the Board of Trustees, made on the twentieth day of January, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Thursday, the sixteenth day of April, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. mar23

OLNEY & CO., Auctioneers and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. no10

Lyon Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-second day of February, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
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J. M. GIBSON.....37.....50.....\$20 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-second day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the auction rooms of Olney & Co., No. 418 Montgomery street, San Francisco, Cal., on Monday, the thirteenth (13th) day of April, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. RUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar23

La Binsen Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1868, an assessment of two dollars and fifty cents per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 312 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. GOLDMAN, Secretary.
Office, No. 312 Front street, San Francisco, Cal. mar23

Nuestra Senora de Guadalupe Silver Mining Company, Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1868, an assessment of one (\$1) dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Peffer, at the office, No. 210 Post street, or to the Treasurer, A. H. Weymann, at his office, No. 637 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of April, 1868, shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PEPPER, Secretary.
Office, No. 210 Post street, San Francisco. ap4

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the six (6th) day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco, California. mar21

San Francisco and Castle Dome Mining Company, Location of Works: Castle Dome County, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-sixth day of February, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
S R Stoddard	100	400	\$10 00
S R Stoddard	101	400	40 00
S R Stoddard	102	200	10 00
S R Stoddard	104	25	2 50
S R Stoddard	105	10	1 00
S R Stoddard	106	10	1 00
S R Stoddard	107	5	50
S R Stoddard	109	5	50
S R Stoddard	110	5	50
S R Stoddard	117	50	5 00
E W Casey	146	50	50 00
Henry Durant	182	100	10 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-sixth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at their salesroom, No. 310 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-first day of April, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. R. SMITH, Secretary.
Office, Room No. 16 Stevenson's Block, Cor. Montgomery and California streets, San Francisco. ap4

Succor Gold and Silver Mining Company.—Location of Works: Storey County, State of Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the tenth day of February, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Aldrich, Lewis	113	79 1-24	\$39 40
Aldrich, Lewis	151	44-1/2	22 25
Aldrich, Lewis	155	151 13-24	75 77
Over, Benjamin	71	20	10 00
Over, Benjamin	72	5	2 50
Over, Benjamin	73	5	2 50

And in accordance with law, and an order of the Board of Trustees, made on the tenth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs Olney & Co., No. 418 Montgomery street, San Francisco, on the fourth day of April, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. MOORE, Secretary.
Office, Nos. 77 and 78 Montgomery Block, San Francisco, California.

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the eleventh day of April, 1868, at the same hour and place. By order of the Board of Trustees.

E. J. MOORE, Secretary.
mar21

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the greatest number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply energy directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and sellers for themselves, at the
PACIFIC FOUNDRY,
1st
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works,
San Francisco, Aug. 29, 1867. 9v15tf

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

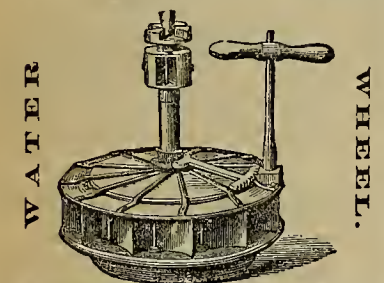
—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3v13f SAN FRANCISCO.

LEFFEL'S

American Double Turbine



THESE WHEELS, UNEQUALLED AND UNRIVALED in the United States or the world, have been fully tested on this coast, more than forty being in use at this date in California and Oregon, driving all kinds of machinery, Saw Mills, Flour Mills, Quartz Mills, etc., etc.

CALIFORNIA REFERENCES.—E. Stotson, Folsom; O. Simmons, Oakland, (Mill at Clear Lake); Morgan Coville, Lexington, Santa Clara County; J. Y. McKillan, Lexington, Santa Clara County. Send for Circular to

KNAPP & GRANT,
Agents for California,
26v13 1y 310 Washington street, San Francisco

NOTICE TO MERCHANTS

—AND—

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common hoist—viz: Greater strength; less danger in working; no goods require no slitting or landing; consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any lashing or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pulley, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,
By JOSEPH MOORE, President.
2v15 1f **JOSEPH MOORE.**

HUNGERFORD'S

Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Ooss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15tf **MORGAN HUNGERFORD.**

Belting and Lacing.

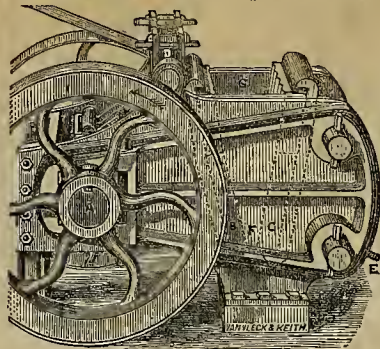
AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 455 Brannan street, between Third and Fourth. Refers to Eisen Bros., Pioneer Mills; Martin Steen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by
CHAS OTTO & CO.,
2v15 3m 312 Bush street.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, complete, \$600

No. 2—Or 15-inch crusher, capable of similarly reducing through five to six tons per hour..... 850

No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour..... 1,200

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the motion is applied to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, O, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County: **RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866.**
JAMES BRODIE, Esq., San Francisco—My Dear Sir: I give me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly, R. P. JOHNSON, Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desirous of procuring the same, without having recourse to legal proceedings, for past infringements or desirous of receiving Letters of License for the limited period named, are requested to address as below.

A diagram, with explanation of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations are afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866. **JAMES BRODIE, Fulton Foundry, or CHAS. B. BOLDCLIFF, Express Building, 402 Montgomery street, San Francisco.**

12v13tf **C. F. TRAVIS.**

Manufacturer of
FRENCH
BURR

Mill-Stones,
AND
PORTABLE

MILLS.
—
Agent for

Dufour & Co's
Celebrated

DUTCH ANCHOR BOLTING CLOTHS.
Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt, Mill-Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS, 5v16tf 109 Mission street, San Francisco.

NELSON & DOBLE,
AGENTS FOR
Thomas Firth & Sons' Cast Steel Files,
Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of
Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,
319 and 321 Pine street,
Between Montgomery and Sansome, San Francisco. 1v14tf

PACIFIC
FILE, REAPER AND MOWER SECTION
Manufactory,
No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast
25v15 3ms **DURNING & KENNEY, Proprietors.**

A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco. 2v15 3m

Fire Extinguisher.



This Extinguisher puts out fire instantly; is harmless to health and property; always ready for use; indispensable for stores, hotels, mills, etc. The following is an extract from the Report of the Committee of the last State Fair:

"We have no hesitation in reporting that the Extinguisher is an invaluable invention, and one which must result, if brought into general use, in a great saving of property and consequent benefit to community at large. We therefore respectfully recommend the award of a special premium."

William Gillen, Chief Engineer Sacramento Fire Department; Julius Weizier, Agent Pacific Ins. Co.; Cyrus Coffin, Solicitor Pacific Ins. Co.; D. W. Earl, Ins. Agent; Paschal Cognin, Sacramento Union.
Office of U. S. Fire Extinguisher, No. 117 Sutter street, under Lick House, San Francisco.
8v15 1/2ma **EDWARD L. LEVEY, Gen'l Agent.**

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866

This Patent secures the exclusive right to employ in Stone-Breaking Machines Up-right Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,
1v15 1/2tf Agents for the Pacific Coast.

IMPORTANT INVENTION.

The subscriber would like to sell the

PATENT RIGHT

—OF A—

Swivel Shackle Block.

It is perfect in its operation, simple in its construction, and the best article ever invented, as the ropes cannot possibly get twisted.

For further particulars, address

JAMES V. ROCHE,
San Francisco.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
8v13 1y Stove Store, No. 125 Clay street, below Davis.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clerke & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and Patterns of every description. Jig-Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.
Terms reasonable for all classes of work, and regulated by the style required. 1v16 3M

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Dust, and Tiles of different sizes. LIME, PLASTER AND GYPSUM. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice.
7v16 6m **H. T. HOLMES.**

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.
12v16tf No. 625 Mission street, near Second.

Wright's Picks for Sale.

THIRTY-FIVE DOZEN FLAT-TOE SURFACE PICKS, with or without stop and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other description of PICKS for sale at REDUCED PRICES. Give me a call at 251 Fremont street, San Francisco.
8v16 3m **JOHN WRIGHT.**

THE RICHEST IRONMASTER IN ENGLAND.

In our issue of Feb. 29th, we mentioned the death of Mr. Crawshaw, an ironmaster whose estate amounted to some thirty-five millions of dollars. The following is from the *Mining Journal* of Feb. 22d: "The almost fabulous wealth of the Crawshaw family has already been noticed in the *Journal*, and it may be interesting to many of its readers to learn how small beginnings may terminate. In the last century the original Crawshaw, then a farmer's son, rode to London on his pony (his sole property) to seek his fortune. He began by sweeping out the warehouse of an ironmonger, who was of a discriminating mind, and saw that young Crawshaw had good stuff in him. The ironmonger had been speculating in sending out iron pots to America, and his astute apprentice observed that, if the Americans used so many pots, they must want hooks to hang them on. Whereupon the master not only took the hint, but kindly determined that Crawshaw should send them out, and that he would lend him the money for the purpose. Upon this venture was realized 100%, and from that time the farmer's son moved rapidly upwards, being first taken into partnership by his master, and ultimately becoming an iron king in South Wales, whose descendant, lately deceased, has left, it is computed, above seven millions sterling. It is a curious fact that from this stock have arisen (in so short a time) two haronnetages and one peerage—that of Llanover."

Too Fast.—The *New York Times*, in advocating the passage of the bill before the United States Senate for the establishment of a Naval Board of Survey, gives as one instance of the necessity of such a board the following statement:

"There are in process of storing at the various navy yards no less than fourteen sets of engines which have been finished without any ships ever having been begun to put them in. It would be a monstrous folly even for an overburdened treasury to lay up in store such useless things as marine engines, without a single keel being laid for them, not only because the engine should be built for the ship instead of the ship for the engine, but also because the engines, with the progress of science, are in danger of going out of date. For our own country, which is selling all its spare material in order to keep down its debts, the thing is preposterous. These engines cost \$400,000 apiece, and here we have an item, for the fourteen, of \$5,600,000."

Piorwick.—An exchange asserts that the Minnesota Historical Society, in their late excursion to Lake Minnetonka, to investigate the remains of the "ancient mound builders"—a race dwelling in this country long before the arrival of the Indians—were successful in finding several human bones, which, after a labored discussion, proved to be the broken limbs of trees. A supposed skull elicited great attention from its remarkable phrenological development, but a rustic demonstrated to the learned gentlemen that the supposed cranium was in truth a mud-turtle's shell. Several mounds, it is stated, have been prepared and supplied with bones and pieces of broken crockery for the future investigation of this Society.

Jets of Naphtha.—An artesian well of naphtha has been discovered at Kudaco, in the Caucasus, by boring. At the depth of 274 feet from the surface the liquid was first struck, and for a whole month gave a supply of 1,500 barrels daily. Since then a fresh source has been met, which rises with irresistible force to the height of forty feet above the ground, the jet being four inches in diameter, and delivering a daily supply of 6,000 barrels.—*Builder.*

IMITATION OF OLD TAPESTRY.—A new kind of wall decorations is being manufactured in Paris. It consists in laying colors upon canvas sewed together in breadths. The cloth itself gives the lights. The colors are mixed with analbuminous composition, and are fast. The imitation of the old tapestry of the middle ages is very perfect; so expert have the artists become in laying the colors.

REFINING OF SUGAR.—A modification of the refining process has been patented in Europe, by L. Pierre and R. Massey. After being clarified in the usual way, with lime and carbonic acid, the juice is treated, at boiling temperature, with caustic baryta, (60 parts to every 100 of sugar,) the precipitate suspended in water and decomposed with carbonic acid. The pure solution of sugar thus obtained, is then evaporated.

COAL TAR FOR FENCE POSTS AND SHIPS' BOTTOMS.—Mr. O. F. Raymond, of Norwalk, says he has used hot coal tar with great success in preserving from decay fence posts and other timber exposed to alternate wet and dryness. He places the posts in the boiling tar for a few minutes, then sprinkles them with clean sand. After setting the posts, the portion above ground is paid over with hot tar and coated with sand.

He claims also to have a composition of which coal tar is the basis, designed to be used on the bottoms of vessels to prevent fouling and the ravages of the teredo. He claims that a vessel coated with it can make a voyage to the East Indies and back, without, on her return, having a single barnacle clinging to her bottom or a worm in her timbers, except such as may have been in before the composition was put on.

TO PRESERVE BOOKS FROM MOLD.—A correspondent of the London Builder says that books are effectually preserved from mildew by lightly washing the backs and covers with spirits of wine, using the feather of a goose-quill as a brush.

WE ARE NOW OFFERING OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of

ALL THE LATEST STYLES
BOTH OF MATERIAL AND FINISH.

A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.
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Cor. of Washington and Sansome streets
8v10

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IMPORTERS AND REFINERS

Illuminating, Lubricating,

PAINT OILS!

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LINSEED, CASTOR AND CHINA NUT.

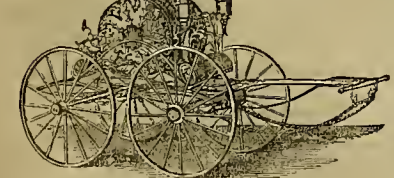
SPIRITS OF TURPENTINE & ALCOHOL

NOTE.—We would specially call the attention of Mill owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.

A sample can of our Paraffine Oil will be forwarded on application to us, as we desire a fair and impartial trial.

Lamps and Lamp Stock!

An elegant and complete assortment on hand.
19v13-3m 414 Front street, San Francisco.



Hose and Belting.
Fire, Hydraulic Hose and Leather Belting, made of the heaviest and best quality of Oak-tanned Slaughter Leather. Also, Fire Belting, suction hose, etc. Our Belting is well stretched, renovated and warranted to run true, and our hose guaranteed to give satisfaction. A large assortment always on hand and orders promptly filled. No. 801 Battery street, San Francisco. 13v16 3mew

A FULL ASSORTMENT OF TWISTED DRILLS,
At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

Steam Gauges, a general assortment of Hardware, Cutlery, and MECHANICS' TOOLS,
By CHAS. OTTO & CO.,
22v15-3m 312 Bush street, San Francisco.

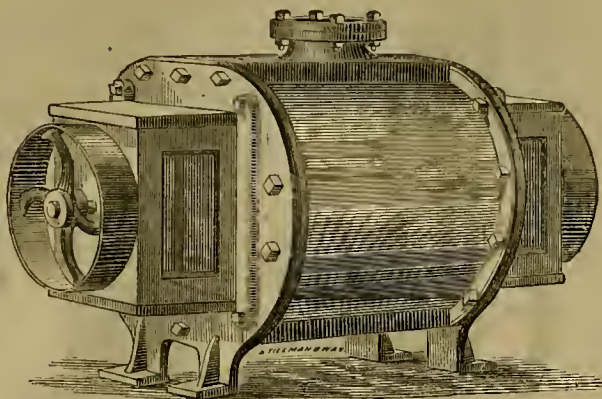
The American Spring Bed.

THIS BED, NOW SO POPULAR IN THE EASTERN
and Western States, was patented August, 1836. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines cleanliness with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 29 Post street, San Francisco. 8v16-3m

ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



ADAPTED

FOR

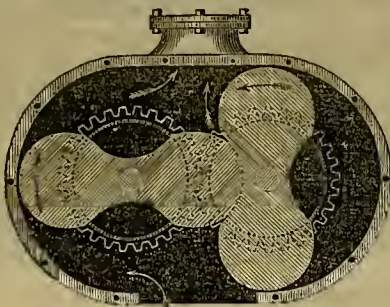
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Foundry,

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Steamships.



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Fifty Per Cent.

LESS POWER

Than any Blower

now in use.

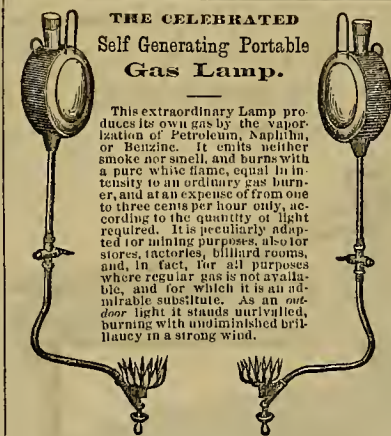
One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Aetna Iron Works, San Francisco, and many other places.

CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address

KEEP, BLAKE & CO.,
Globe Iron Works, Stockton, Cal.

4v16 3m



THE CELEBRATED
Self Generating Portable
Gas Lamp.

This extraordinary Lamp produces its own gas by the vaporization of Petroleum, Naphtha, or Benzine. It emits neither smoke nor smell, and burns with a pure white flame, equal in intensity to an ordinary gas burner, and at an expense of from one to three cents per hour only, according to the quantity of light required. It is peculiarly adapted for mining purposes, also for stores, factories, billiard rooms, and, in fact, for all purposes where regular gas is not available, and for which it is an admirable substitute. As an outdoor light it stands unrivalled, burning with unimpaired brilliancy in a strong wind.

Directions for Use.

Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn off the tap, and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained till the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vice and the burner screwed off. The burnt cotton must then be withdrawn, and a fresh piece of stout cotton rag, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

Manufactured solely by JOHN J. HUCKER, original proprietor, Factory, North Beach, San Francisco; and for sale by his agents in every city and town throughout the State. 18v11 3m-8



TO SPORTSMEN.

THE UNDERSIGNED, HAVING BEEN APPOINTED
Sole Agent for the Pacific Coast for the sale of ROYER'S BREECH-LOADING SHOT GUN, which discharges four shots in two seconds, circulars will be furnished by applying to or addressing

HENRY EITEL,
111 Second street.
Or Lock Box 1172 P. O., San Francisco. 18v16 2m-6m

Favorable to Inventors.—Persons holding new inventions of machinery and important improvements, can have the same illustrated and explained in the Mining and Scientific Press, free of charge, if in our judgment the discovery is one of real merit, and of sufficient interest to our readers to warrant publication.

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Mill and Manufacturing Co.

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Formerly James Brokaw, Proprietor.

This establishment is now under the control of a Joint Stock Company, composed of the old employees, is supplied with all the

Modern Improvements in Machinery,
And has the best facilities in the State for furnishing Buildings with every description of **WOODWORK FINISH.**
All orders promptly and carefully attended to.
2v16 3m **ASA R. WELLS, Manager.**



A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
NERVOUS
DISEASES.
Its Effects are
Magical.

It is an **UNFAILING REMEDY** in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can always be used with

PERFECT SAFETY.

It has long been in constant use by many of our most

EMINENT PHYSICIANS,
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One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
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—AND—
CENTRAL CITY, COLORADO.
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Highest price paid for choice lots of Ores, Sulphurets, Arsenides, Asbes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
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And the Use of the Blow-pipe,

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Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, it desired, by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.
Consignments of Gold and Silver Ores solicited.
Refining of Bullion at usual rates.
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And from France and Germany, as well as the Eastern States, FURNACES, CRUCIBLES, NUFFLES, BLOW-PIPE CASES, GOLD SCALES, CHEMICAL GLASSWARE, and every article required for ASSAY OFFICES, LABORATORIES, etc. We have given this branch of our business particular attention, to select such articles as are necessary in the development of the mineral wealth of this coast. A Full Assortment of DRUGGISTS' GLASSWARE and DRUGGISTS' SUPPLIES, ACIDS and CHEMICALS, constantly on hand.
San Francisco March 6, 1865. 11v10 1f

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SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF
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Tests of Gold, Silver, Copper and Lead Ores, by Smelting, in quantities of fifty pounds to five, ten or fifty tons. Consignments of ores solicited.
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Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical Products.
Superintendent, Mr. WILLIAM WEST, formerly of Swansea, Wales.

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19v15-6m

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"The Excellent"
Will not repair broken limbs nor leaky roofs; but it will quiet the nervous and brace up the weak. It will give more comfort to those suffering from dyspepsia or indigestion than any preparation you ever tasted or heard of. The first physicians use it, and it is made by
HARRY A. PATTEN,
5v16 3m 413 Montgomery street, San Francisco.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

PACIFIC ELASTIC SPONGE CO.—April 23. Capital stock, \$50,000; 500 shares, \$100 each. Trustees: W. R. Strong, Henry H. Linnell and John M. Avery.

OROVILLE WATER CO.—April 23. Capital stock, \$15,000; 1,500 shares, \$10 each. Trustees: Silas W. W. Coughy, J. M. Clark and Daniel Hilton.

HARRISON STREET HOMESTEAD ASSOCIATION.—April 8th. Capital stock, \$52,000; 80 shares, \$650 each. Trustees: Henry Mahan, G. Railsback, Jno. M. Milliken, Henry Chester, Philip H. Blake, A. L. Chamberlain and J. W. Nye.

PAUL TRACT HOMESTEAD ASSOCIATION.—April 8th. Capital stock, \$255,000; 520 shares, \$500 each. Trustees: Henry F. Williams, S. Heydenfeldt, Henry A. Crane, Louis Slose, W. C. Ralston, A. T. Fletcher and T. B. Wilde.

ELECTION OF OFFICERS.—**JOURNEYMEN LATHES OPERATIVE UNION.**—April 7th. President, Thos. J. Shields; Vice President, Wm. O. Southwick; Secretary, John G. Gillway; Treasurer, John C. Buckmaster; Sergeant-at-Arms, John McGovern; Investigating Committee, Thomas McGee, Thos. Conners, James Donnelly.

PROFESSIONAL NOTICE.—By reference to our advertising columns it will be seen that Mr. G. W. Maynard, having accepted the Professorship of Metallurgy in the Polytechnic Institute, Troy, N. Y., has retired from the firm of Maynard & Tiemann. Mr. J. H. Tiemann remains at 240 Pearl street, where those who desire a competent mining engineer and metallurgist, can secure his services.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this country, Mr. G. W. Purdy, who formerly resided at Fort City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 637 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1896. 18v163m

MEDICAL AUTHORITIES have announced that not less than one-third of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Massachusetts. His "Universal Neuralgia Pill" is pronounced on all hands to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions twenty per cent. cheaper than ever before, and the very best articles in market. The store is located at 115 Sutter street, Lick House Block. 23v15cf

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

Save Your Teeth.—Do not have them extracted without first consulting a good Dentist. The loss is irreparable, and, in many instances, unnecessary. **DRS. BEERS & JESSUP**, corner of Montgomery and Sutter streets, over Tucker's Jewelry Store, makes a specialty of filling the fangs of dead Teeth, and building up broken crowns with *rust gold*—thus restoring them to their original usefulness and beauty.

Call and examine the work. Finest quality of artificial work also manufactured. 18v14cf

Miners, Vis 718 to mining districts, R. B. EMPLOYERS, and TRAVELERS generally, should insure against all accidents in the *Traveler's Life and Accident Insurance Company* of Hartford before leaving the city.

WM. MACDONALD & CO., Gen'l Agents.
7v163p 121 Montgomery St. opp. Occidental Hotel.

Accidents.

The Traveler's Insurance Company, of Hartford, Ct., insures against death or disabling injury by accident. \$100,000 per week paid the insured in case of injury preventing the prosecution of his business; \$50,000 paid to his family, or legal representative, in case of his death by accident. No medical examination required. **WM. MACDONALD & CO., Gen'l Agents.**
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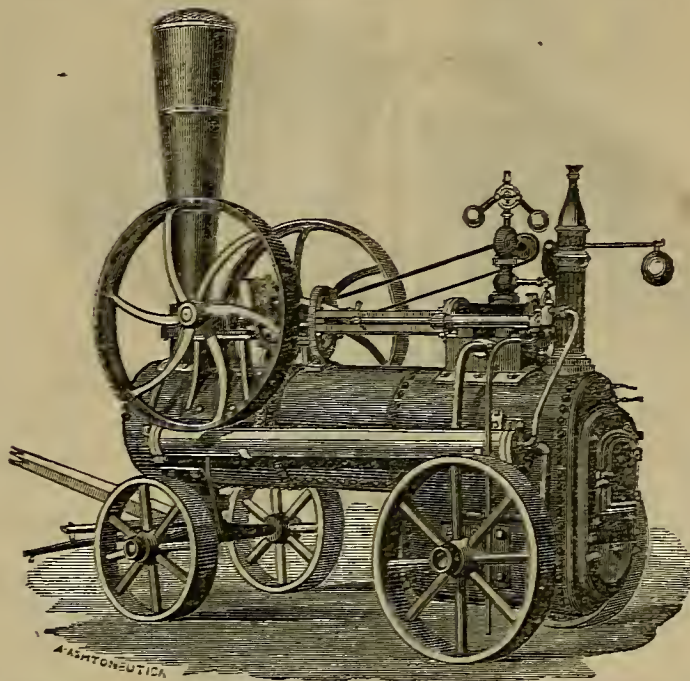
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With newly invented Water Bottom, which entirely surrounds the fire grate and ash-pit, forming underneath the ash-pit, and the sides of the furnace, a three or four inch water space, by which additional heating surface is obtained, the accumulation of sediment around the fire-box or furnace is entirely prevented, and renders it perfectly safe to use near any barn, or in any farm-yard, or in any building where a stove would be a lowered, as no marks can possibly escape from the furnace or ash-pit. The sediment has a free passage to the bottom of the fire-box, and can be blown off daily by the blow-off cock underneath the ash-pit, by which means the boilers may be kept clean much longer than under the old system. The great saving in repairs which is effected by the use of these water bottoms, and the constantly increasing demand for them, prove their superiority to any others yet constructed.

HOADLEY'S THRESHING ENGINES,

HITTINGER & RAWSON'S IMPROVED HOISTING ENGINES, 6, 8, 12 & 20-horse power.

For Sale by

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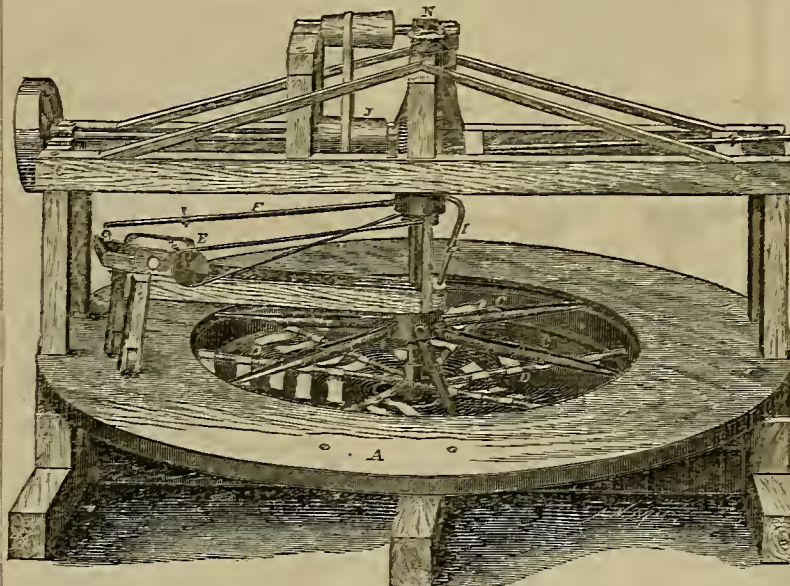
Front street, bet. Pine and Market, San Francisco.

J. STREET, NEAR THE LIVERY, SACRAMENTO.

18v163t

PAINE & STEPHENS' IMPROVED CONCENTRATOR,

For Saving Gold and Silver Sulphurets.



This invention, a perspective view of which is given above, consists in applying machinery to the ordinary huddle, and rendering the same automatic in action. It is calculated to do a large amount of work.

One Machine, costing about \$1,400, is sufficient to work the Sands from 25 to 30 Stamps. But very little power is required.

It can be easily run by one man turning a crank. The principle on which it works is entirely dissimilar from any other machine now used on the Pacific Coast; although it is in almost universal use in Europe; but not so arranged there as to be automatic in action.

The illustration given herewith, was fully described in the *Mining and Scientific Press* of March 21, 1896.

One of these machines may be seen in constant operation at the Eureka (Watt's) mine in Grass Valley, where it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill, near Virginia City.

For further information, apply to **THOMAS N. PAINE**, Grass Valley, California.

PAINE & STEPHENS.

18v163w

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Manufacturer of **BRASS, Zinc, and Anti-Friction or Babbitt Metal Castings:** CHURCH AND STEAMBOAT BELLS.

TANKS AND HAND BELLS AND GONGS.

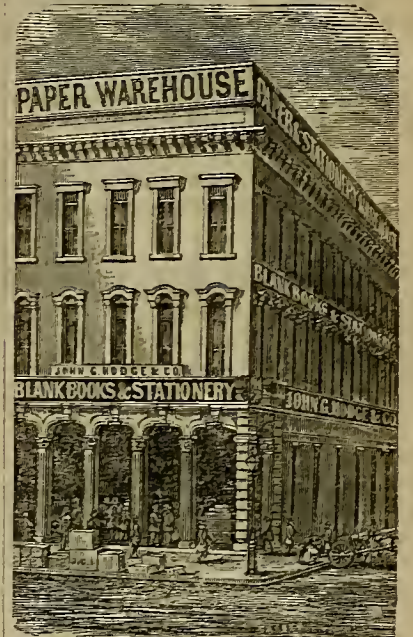
FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Locomotive, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Also and all other Joints, Spellers, Solder, and Copper Pipes, etc. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles, etc.

HYDRAULIC PIPES AND NOZZLES

For Mining purposes, Iron Steam Pipe furnished with Fit tines, etc. Coupling Joints of all sizes. Particular attention paid to Disulphur Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

Best Market price paid for OLD BELLS, COPPER AND BRASS. 6v



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By the Year, Month or Number.

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This department of Yale College, instituted in 1890, and endowed with the National Land Grant in 1866, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and expensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 18v163p

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DEWEY & CO., PUBLISHERS
And Patent Solicitors.

SAN FRANCISCO, SATURDAY, APRIL 18, 1868.

VOLUME XVI.
Number 10.

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 Wood Handlings.
 Petroleum for Steam Fuel.
 Ten Days to New York.
 Disappearance of a Lake.
 A Lake of Boiling Water.
 Anthracite Gunpowder.
 The Pope and Mr. Peabody.
 San Francisco Weekly Stock Circular.

Tustin's Improved Adjustable Windmill.
 In a country such as ours, where high winds prevail, particularly in the dry season, and where fuel is scarce and expensive, the force of the wind as a motive power will doubtless continue to be utilized more and more from year to year. Our arid plains need it for irrigation; it will be called into

sary. These considerations, were there no others, are sufficient to render every improvement in this direction a matter of general public interest.
 The accompanying illustration is intended to represent a recent invention of Mr. W. I. Tustin,—a practical mechanic of this city, and by no means a novice in this branch of industry, as he is well known as the inventor of a self-regulating windmill

cap being sufficiently wide for the box to turn readily within it, to suit any direction of the wind. Upon the head of this upright column, within which the pump-rod works, is fitted and bolted a strong iron box, having a rotating circular top upon which the crank-shaft of the wind-wheel rests. The guide vane, which is connected with the iron cap of the column by means of a socket, subserves the purpose of keeping the wind-wheel in a proper position with reference to the direction of the wind, and for properly regulating its velocity.

A, is an endless rope, supplied at its lower extremity with a sheave, and also a weight to keep the rope in its proper place. B represents a sheave over which the rope runs; and C a pulley around which it also passes,—this pulley, and the circular cap at the upper extremity of the box, being connected by the iron rod in its rear, as seen in the engraving.

By drawing down on the rope (A) the wind-wheel will be turned, facing the wind more or less as may be required. To stop the mill, or reduce its power, it is only necessary to draw down upon the opposite rope, and by this simple means the power or velocity may be graduated as desired, according to circumstances, without ascending the mill.

This machine is represented as so simple in construction, and in all appliances for operating it, that a child may start or stop it at pleasure, or set it to receive any given amount of power that may be required, being controlled far more easily than any other windmill in use. The almost unanimous verdict in regard to it, as rendered by many of the most competent mechanics and farmers of the State, who have thoroughly examined it, as set forth in the inventor's circular, represents it as the strongest, most durable, and the simplest in construction, as well as the most efficient in working, of anything of the kind hitherto introduced. The public, however, have now an opportunity of examining these mills, and judging for themselves as to their merits, as one of them may be seen daily at the junction of Turk and Mason streets with Market.

They are now being manufactured at the carriage and railroad car factory of H. Casebolt & Co., corner of Fifth and Market streets, in this city, and are now for the first time brought to the notice of the readers of the Press.

The inventor has taken the necessary steps, by filing a caveat for further perfecting his machine, and securing his rights, as preliminary to making application for letters patent.

BUSY AND LUCKY.—The London Underground Railway has, during the five years of its existence, carried 80,000,000 passengers, at an average speed of sixteen miles an hour, and without the loss of a single life. Twenty-one millions of passengers were carried in 1866, and 23,000,000 in 1867. About 3,000 trains run over it per week, running the greater part of the day every five minutes.

THE "POPULAR DICTIONARY."—While in Springfield, Mass., recently, we had occasion to call upon Messrs. G. & C. Merriam, publishers and owners of the copyright of Webster's Dictionary. We knew they were as popular, as individuals, in their local community, as their dictionary is throughout America. Before we left their office we better understood the reason of this popularity. They are affable, unassuming, straightforward, and liberal men. Bestowing close and studious attention to business, they have been preparing for the recent edition ever since they came in possession of the copyright, in 1847. Although too much credit cannot be given the talented men who assisted in the literary work, it is evident that only by the fortunate combination of prudent foresight, incessant care, impartial and liberal direction of the "head center," could such a work as the present "Webster" be builded up.

We were shown by Mr. Merriam an immense pile of revised copy, an examination of which shows the great number of changes and additions made to each page of the work. A life-long use of the book could not more plainly reveal the magnitude of the undertaking. It stands preëminently alone in the literary field, with a likelihood to long continue so, for probably no other publishers would have been willing to venture upon such an expensive enterprise; nor would the Messrs. Merriam have felt justified in carrying the work so far in advance, but for the extensive patronage achieved by former editions. Persons who own the former edition, should not consider it in comparison with the "unabridged" of 1865.

FIRST SIGHT OF A LOCOMOTIVE.—A number of Chinese notables who are connected with the Embassy now in this city en route for the Atlantic, made an excursion the other day on the Alameda Railroad. The affair was entirely new to them, and they examined everything with curious interest, making appreciative and intelligent inquiries. They take especial note of all machinery, as if conscious that the secret of the wonderful progress of the "outside barbarians" was to be sought for in the mechanical arts.

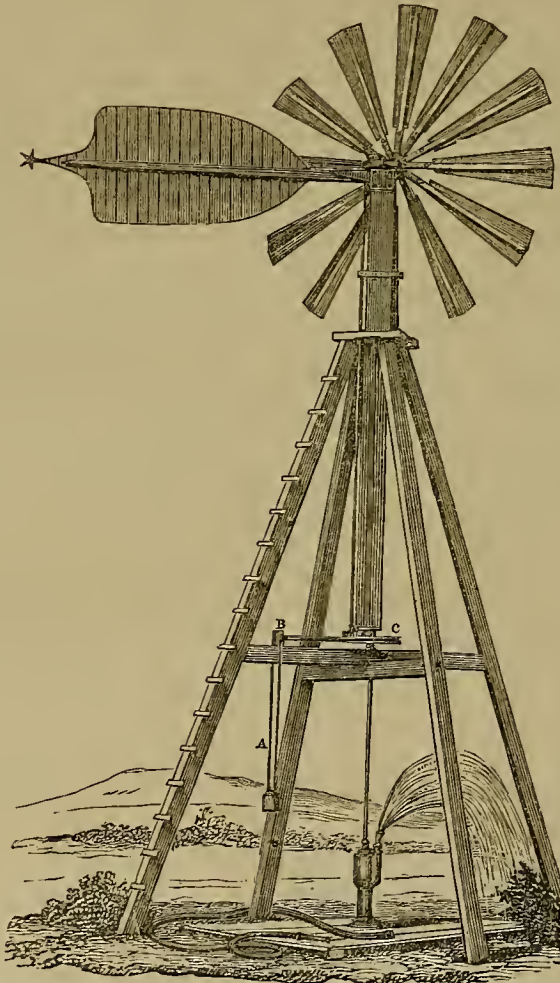
BORAX FOR PRESERVING WOOD.—Sigismund Beer, of New York, has taken out a patent for preserving wood by treating it with a boiling solution of borax in water.

requisition to supply water for our newly settled farms; for our herds of cattle and other live stock, as they are driven back from the great centers of commerce and agriculture by a crowded immigration; for the numberless locomotives of the various railroads about springing into existence,—and for a thousand other purposes to which this power may be applicable. Where it can be used to advantage, it is the most economical power known.

The original outlay for a first class windmill, is less than for any other power of equal capacity. When once erected, there is, comparatively, no expense required to keep it in operation, day and night, if neces-

sary. These considerations, were there no others, are sufficient to render every improvement in this direction a matter of general public interest.

The frame of the adjustable mill is composed,—as will appear by reference to the engraving,—First, of four uprights, terminating at their upper end in a cap, to which they are firmly bolted. Second, of two cross-beams, locked and bolted together at the center, and fastened also at their ends to the uprights by means of bolts. An upright cubical box, furnished at its lower extremity with a hollow pivot gudgeon, fitting into a step, bolted to the cross beams of the framework,—through all of which the pump-rod is made to work,—passes through the cap at the upper part of the frame, the



TUSTIN'S IMPROVED ADJUSTABLE WINDMILL.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

Engineers;—Who and What They Are, and their Duties to their Employers and the Public.

EDITORS PRESS:—It seems strange to me that there should be thought anything of importance in the above heading; yet, to the careful readers of our daily papers, who so frequently see the record of fearful boiler explosions, with great destruction of life and property, it may suggest a momentary thought. The careful engineer, who has served an apprenticeship in the manufacture of engines or boilers, on reading an account of a fearful explosion, invariably exclaims,—"Another practical lesson to the world, confirming the fact that cheap and inferior engineers are disastrous to life and fire insurance companies!"

The careful engineer feels as safe in the discharge of his duties, as the farmer does in his barn, shelling corn. It makes no difference to him whether he is on a locomotive in a dark, stormy night, on the boisterous sea, or in the noisy quartz mill,—it is all the same to him. He has his hammer and wrench, his chisel and caulking tools, plugs, canvas, lead, oil and tallow, where he can lay his hand on them at once; and he knows how to use them. He is not surprised by the bursting of his steam-pipe or cylinder-head. He does not go to the owner, superintendent or captain, with tears in his eyes, because his pump refuses to feed water into his boilers; neither does he attempt to feed when none is indicated by his gauge.

The writer was a fireman on a propeller on Puget Sound, in 1859, when the engineer attempted to force him into the furnace because he refused to add more fuel to a heavy fire, when no water was to be found, and while the crown sheet was at a red heat; he remembers he fought for dear life. It is no uncommon occurrence for many so-called engineers to put on their pump, with a heavy fire, and no water to be found. I have frequently seen it done. The writer was once a passenger on the steamer St. Louis from New York to Aspinwall. When a few days at sea, one of the boilers commenced leaking, and the chief engineer was obliged to secure the services of the mechanical force among the passengers, to patch and caulk the leaks.

During the early days of the late rebellion, the writer was acting as a petty officer in the engineer's department of one of the floating palaces between San Francisco and Panama. On one of the trips, as inferior a workman as he is, he was the only mechanic in the department, except the chief engineer. An engineer, Mr. W., recently told me of an incident that once occurred to him. He was employed in Sacramento to go to the mountains and take charge of a quartz mill. He found a man there who was acting as engineer. Mr. W. asked him how long he had been there; he said three years. In the course of other necessary investigations and repairs, Mr. W. proposed to remove the cylinder-head, and examine and set out the springs against the rings, if necessary. Mr. Smarty, the engineer of three years' experience, remonstrated and said that it was entirely unnecessary, as he had not had the cylinder-head off since he had been there, and the engine ran well as it was! Mr. W. being the engineer in chief, would not listen to him, but removed the head and follower, and found the rings, springs and screws entirely decayed. Thus, with wood at \$8 per cord, that cheap engineer had cost the company at least \$4,800 per annum, for the last three years, more than a competent, skillful mechanic would have cost them. He would work for \$75 per month, while a mechanic exacted \$100.

My employer recently asked me if I had

tallow enough to last me through the night. I told him no; thereupon we jumped a rock-breaker about the mill, who informed employer that when he ran a steam engine he used coal oil in the cylinder. Employer twisted his nose and replied, "I want no coal oil about my cylinder." It was perfectly absurd, for nearly all the oil would have become a gas immediately on entering the cylinder.

There is another very important item connected with running an engine with care, economy, and safety,—and that is *lubrication*. Many men will put as much oil on a journal two inches in diameter, making twenty revolutions per minute, as others will on an 8-inch journal making eighty-five revolutions per minute; and it is more than probable that the man using the most oil will have hot journals.

I have seen an oiler on board the Golden City, between San Francisco and Panama, with her 105¼-inch diameter and 12-foot stroke cylinder, making from 13 to 14 revolutions per minute, and a pair of engines turning 90 revolutions per minute, keep everything cool with less than one pint of oil. I have seen others on the same ship, with equal advantages, use three pints of oil, and then retire from watch with hot journals, burning the water from the hose, frequently used for cooling them.

The use and abuse of tools is another item. Many engineers will use a monkey-wrench to set up a key, or to chip with; will take a hammer to lighten or loose a finished nut, and slap their gauge-cocks with a fire-shovel, to find water.

Fuel is a great expense in California, and also in the State of Nevada. Even when the works are in a forest, labor being high and feed for animals scarce, it behooves the mill-owner to devise means for using as little fuel as possible. Many use the modern and improved engines,—Corliss's, Green's, Scott & Eckert's, Vulcan, etc., etc. They are all manufactured in this State, and thousands can vouch for their economy in fuel. I have frequently asked mill-owners why they did not use one of the above engines, as they save many cords of fuel in the course of a year. Poor fellows, their excuse was the difference of \$100 per annum between a mechanical and a shovel engineer. They punish themselves for their mistaken economy at the rate of 25 cents per day for every horse power, or from \$1,000 to \$10,000 per annum. They also forget that, even in the use of the common old-fashioned slide-valve engine, with a shovel engineer, they stop the mill many days in the course of a year, with broken cranks, pine, cylinder-heads, eccentrics, connections, cut cylinders, melted tubes, burnt crown-sheets and tube-sheets; sometimes by reason of too much water in the boilers, and at other times because there is none at all; sometimes because shafting and engine are out of line, or that the rabbit metal is all out of the boxes. Countless other things may also compel the owner to send for a machinist, and pay exorbitant prices for his services,—as we send for a physician to doctor our physical machinery, when it is deranged for want of proper care.

It often becomes apparent to a mill-owner that he should curtail his fuel bill; he gets a splendid Corliss engine to do his work. The machine of many days' labor is erected and makes its trial trip; it gives perfect satisfaction to him and the builders, and the mechanics who erected it return to the shop, and the shovel engineer takes charge of it. Soon the cylinder and valves are cut; then the unskilled engineer tampers with the valve connections and regulator,—and because it does not cut off to suit the miller or superintendent of the mill, the poor inventor or manufacturer gets a worse cursing than the shovel engineer ever gave his bulls, when following the vocation that his father brought him up to, on the old farm in the Eastern States.

Machinists and boiler-makers frequently congratulate themselves that men are employed in driving steam engines who are mechanically unable to keep up the repairs, and who therefore derange the machinery, blow up the boilers, etc. But it is a mistaken policy on their part; for many capitalists will not embark in steam enterprises, because they have so much fear of its many risks. The insurance companies want a great deal more money to take a risk where unskilled engineers are employed. In many instances they will not take a risk for any money, and the work of the skillful mechanic goes to wreck in less time than is consumed in its manufacture.

The poor farmer procures a portable engine at a cost of \$2,000, to thresh his grain. He goes to San Francisco, and finds a man, at an employment office, to run his engine for \$50 or \$75 per month. The engineer starts a fire under his boiler, and threshes grain until noon. Then all hands go into

the house to get their dinner, leaving the water low in the boiler, the safety valve tied down, and a heavy fire in the furnace. A spark falls into the loose straw; it spreads to the stack; the grain is all on fire in an instant; the boiler is strained and overheated, and in a few moments it goes off like a rocket. That poor farmer does not buy a threshing engine again, nor does his near neighbor. I could recite many such tales of practical, real truths, that have come under my observation since my advent in California, all resulting from utter ignorance and carelessness. As for boiler explosions, I never believed that a boiler ever exploded with one solid cock of water in it. I have seen 125 pounds of steam carried on a boiler that I have driven a tack hammer through at every blow. I know of an instance where a boiler that carried from eighty to one hundred pounds of steam daily, exploded, while but forty pounds were indicated only a moment before. The water was low, with a heavy fire under it; the engineer put his pump in motion, and the first turn of the pump dashing cold water on the heated plates, very few were left in that neighborhood to tell the tale. One instant before, the engineer had cautioned the proprietor to remove himself to a place of safety.

I contend that there ought to be as stringent laws enforced in the employment of stationary as of marine engineers, and that we should have a Board of Examiners in every county of the State to examine engineers and inspect boilers. Such a Board can be made self-sustaining without taxing the engineers or mill owners but a trifle; and even if it cost the State \$100,000 per annum, it would be worth millions in the additional security it would give to life and property.

I would refer mill-owners to the Industrial League, or to the various machine shops in San Francisco, if they want good engineers. No intemperate man should ever be trusted with the running of an engine. The Industrial League does not tolerate intemperance among its members, and they number thousands in this State.

For the sake of our sisters and brothers, fathers and mothers, let us be as careful in the selection of competent engineers as Mr. Bemis is in the selection of engineers to watch the massive magazines daily sailing or steaming out of the port of San Francisco, up and down the Pacific Coast, threading the muddy Sacramento and the crooked San Joaquin in the darkest nights with the most perfect safety. On all these boats the machinery is examined, and the engineers are responsible to the United States Government for the lives and safety of the passengers; and what is the difference between being blown up at sea or on the land? Our government protects us on the sea and river, but who protects us as we go down Market, First, Fremont or Clay streets in San Francisco? Very probably a Chinaman has charge of one boiler, two Indians another, no one the next, and a sore-nosed boy eleven years old the fourth. Thus it is that thousands of lives are placed in jeopardy daily all over this State.

FRANCIS L. HALL.

CORN, NOT GOLD.—It is not the gold, but the wheat crop of California that is now attracting so many laborers to our shores. The people of the Eastern States and Europe have seen the exultant jubiliations of our people over the extraordinary grain crops of 1866 and '67, and have heard of the demand for labor and of the gold paid for it in this State. They have also heard of our cheap and fertile lands, our delightful climate, and of the present low rates of fare. Hence, the present rush of laborers to our shores. Do our citizens realize the importance of promptly securing employment for these coming thousands? It will be disastrous for our State if we allow them to be disappointed in their expectations.

CANDLES FOR CARS.—Such a fear of kerosene has been excited by the Angola disaster, that the managers of the principal railroads in the Atlantic States have discarded it for use in cars, and substituted candles. Some States have made this compulsory by law. This is more in deference to public feeling, than from any real danger. It turns out that although it was reported that the horrors of that occurrence were aggravated by the burning kerosene from the broken lamps, the fact was that no kerosene was used in those cars, but they were lighted by candles.

"Natural Wealth of California."

We make the following extracts in reference to the iron ore deposits in this State, from the proof sheets of Cronise's forthcoming work, entitled the "Natural Wealth of California":—

The large and rapidly increasing consumption of iron in this State, together with the prospective requirements growing out of the construction of railroads and the present high prices of this material, render the question of home supply one of vital import. Deposits of ferruginous ores are known to exist in different parts of the State, but not generally under circumstances that would render their reduction profitable, or even practicable. Thus, there are numerous extensive beds in the Coast Range mountains, with others of less extent in the vicinity of San Francisco; but the absence of fuel, and often of sufficient water for smelting works, renders them of little or no value.

There is, however, a heavy accumulation of excellent ores at Gold Valley, Sierra county, situated under circumstances extremely favorable to large and cheap reduction, there being in the immediate vicinity an abundance of the finest timber and a sufficiency of water for all necessary purposes. These deposits, which are located about twelve miles east of Downville, in the neighborhood of the celebrated Sierra Buttes gold mines, are owned by the San Saba Iron Mining Company, incorporated with a view to prosecuting the work of their practical development.

The ores, at this point occur in a belt of metamorphic rock, being scattered over an area four miles wide and ten or twelve miles in length. They are of the magnetic variety, identical with that from which the best Swedish and Russian iron is made, and exist here under three different conditions: First, as an unmixed magnetic ore, so fine grained as to resemble the best of steel, and so pure that a large proportion of it will yield from sixty to sixty-five per cent. of metal. Then, there are masses of this magnetic ore mixed with carbonate of lime, while again it occurs associated with talcose slate, through which are diffused innumerable crystals of iron, the impurities in this case being of a kind not likely to interfere injuriously with the smelting process, while the carbonate of lime is present in about the proper quantity to supply the necessary flux. These two classes carry about fifty per cent. of the pure metal.

The deposits at this place furnish a notable instance of iron ores marked by an entire absence of arsenic, sulphur, phosphorus, and such other substances as tend to deteriorate the quality of the metal. The aggregate quantity of ore upon the tract owned by this company is immense; the outcrop of the ore chutes being from 50 to 250 feet long, from 20 to 200 feet wide, and projecting from twenty to fifty feet above the surface—it being estimated that a million and a half tons of first class ore can be removed from the surface deposits, worked as an open quarry.

The value of these mines is greatly enhanced by the facilities that exist for the reduction of their ores, being in the midst of heavy forests of pine and spruce, insuring cheap and unailing supplies of charcoal for smelting, fuel for generating steam for motive power, and lumber for building; while a number of small streams near by can be made to afford all the water necessary for the reduction works, and, during a portion of the year also, for the propulsion of machinery.

As regards a market for their product, these mines are favorably situated, being in and adjacent to extensive mining districts, wherein the consumption of iron, already large, will hereafter become greatly increased, while the price of the imported article must always remain high. Meantime, the facilities for transporting this product to points where required will be all the while increasing, as new wagon roads continue to be built throughout the country, while the construction of the projected Feather River railroad will afford additional advantages in this respect—the line of this road, by the route contemplated, running within a short distance of this company's property.

With such valuable deposits of ore, so favorably situated for cheap reduction—with very considerable markets at present, and such a large prospective demand—it is highly probable that the erection of smelting works, already projected by this company, will be consummated, and the business of manufacturing pig iron be entered upon at an early day. That, if once inaugurated, this enterprise will prove alike advantageous to the proprietors, and beneficial to the country, can scarcely be questioned.

Mechanical.

Steam Boilers.

The following is from the report of the Chief Engineer of the National Boiler Insurance Co. for 1867, as given by the *London Mining Journal*:

Long boilers strain considerably, and frequently give great trouble by leakage at the riveted seams. A fair proportion is when the length is about three and a half times the diameter. The staying of the end plates, and the attachment of the flue tubes to the ends, should be so arranged that the tubes may expand freely, unless there be some special arrangement in the form of the flue tubes to attain the same object. Many boilers, otherwise well made, have given considerable trouble by leakage and fracture, owing to the severe strains of unequal expansion, to which their rigid construction exposed them. In some of the boilers inspected the ends were so heavily stayed, and so rigid, that considerable leakage, and occasionally fracture at the ring seams of the lower part, resulted. In others the staying was so slight that the ends were bulged outwards, and serious risk of explosion thus incurred.

Flue tubes should never be stayed to the shell, but be attached at the ends only. The shell should be made quite circular, and the longitudinal seams, which should "break joint," be so arranged that when the boiler is set all those below the water line may be accessible for examination in the flues, and be clear of the brick seatings. Many makers now double-rivet these seams.

Multitubular boilers should, as far as practicable, be so constructed that every part of the interior may be accessible for cleaning and examination; and it would be a great improvement if those of portable and locomotive engines were so constructed that the tubes could be drawn without difficulty, so as to allow occasional inspection of the internal surface of the plates. External flues are necessary to stationary cylindrical boilers of this class, otherwise the lower seams are strained and become leaky through excessive unequal expansion of the boiler. Plain cylindrical externally-fired boilers, with egg or saucer-shaped ends, can never work so safely as a properly constructed internally-fired boiler, as they are so liable to fracture at the seams over the furnace, through the excessive alternate expansion and contraction to which they are exposed. The application of stout longitudinal stays would add materially to the safety of such boilers.

A large number of cylindrical vertical boilers are used in various ironworks; they are generally heated from the "puddling" or similar furnaces, the heat first entering the external flues, and passing thence by an internal descending flue-tube to the chimney. They are especially liable to starting and fracture of the riveted seams opposite the furnace necks, owing to the intense heat at that point; and where the feed water deposits much sediment the solid plate is sometimes fractured. To avoid this liability, the part referred to should be protected by a screen of brickwork, or the boiler set at a higher level, that brickwork may be so arranged as to spread the heat before it reaches the boiler. The bottoms of these boilers are frequently quite inaccessible for examination, and serious corrosion may go on unknown to those in charge.

In setting boilers, special care should be taken to thoroughly drain the ground, that no dampness may exist in the flues to cause corrosion of the plates. All the flues should be large enough to allow a man to pass through, so that every part may be accessible for examination. Midfeather seatings are very objectionable, and no boiler should be so set except those of very small diameter, and in such cases thick but narrow iron plates should be placed on the top of the brickwork to protect the boiler. Cylindrical boilers, internally fired, should be set on side walls, the boiler resting on fire-clay blocks made for the purpose, and so shaped that when built in place the bottom of the side flues may be much lower than the point where the boiler rests on the blocks. If the blocks be properly fitted to the plates that the bearing thereon may be equalized, the total breadth of both side walls where in contact with the plates need not exceed one inch for each foot of diameter of the boiler. The top of the side flues should be level with the crown of the flue tubes. All boilers should be roofed over to protect them from external moisture, otherwise the sides in contact with the flue brickwork will be weakened by corrosion.

THE COLORING OF BRASS.—Polished brass so easily tarnishes, that scientific instruments are now almost always bronzed. The *Engineer* gives some of the methods adopted for giving different colors to brass. We condense its remarks as follows: An orange tint, inclining to gold, is produced by plunging the polished brass for a few seconds into a neutral solution of crystallized acetate of copper. The solution must be warm, and contain no free acid. A beautiful violet is obtained by immersing for an instant in a solution of chloride of antimony, and then rubbing with a stick covered with cotton. In this case, the brass should be heated so as to be just tolerable to the touch. A *moiré* may be produced by boiling in a solution of sulphate of copper. The tints vary according to the proportions of zinc and copper in the alloy. To bring out the wavy appearance of the *moiré*, friction with a resinous or waxy varnish is sometimes necessary. This is also increased by dropping a few iron nails into the bath. A black lacquer is produced by polishing with tripoli, and then washing with a mixture composed of one part nitrate of tin and two parts chloride of gold. After a quarter of an hour this wash is to be wiped off with a linen cloth.

A LAD'S INVENTION.—We clip the following from the *London Mining Journal* of Feb. 15th: A few months ago, considerable attention was excited by the announcement that a young gentleman, about twelve or thirteen years of age, had obtained a patent for certain improvements in steam-engines. The invention was submitted to public investigation at some house in Holborn, and the representatives of the press repaired thither to avail themselves of the opportunity thus afforded to them of becoming acquainted with a new step in the progress of the useful arts. They found a very agreeable, intelligent young gentleman, ready to explain his invention to them, and perfectly competent to do so. The matter is of sufficient importance to justify a description, as the final specification has recently been printed. Master Franklin's invention relates to steam-engines in which two cylinders are employed, the pistons of which are connected with one crank-shaft; and the invention consists in so arranging the engine that the steam only acts on each piston to move it in one direction, so that, if two cylinders be employed, the pressure of the steam will be acting on the piston of one cylinder, and thus turn the crank-shaft, while the piston of the other cylinder is being moved back without being acted on by the pressure of the steam; the cylinders are left open at one end.

CEMENT.—A cement particularly adapted for attaching the brass work to petroleum lamps, is made by Puscher, by boiling three parts resin with one of caustic soda and five of water. The composition is then mixed with half its weight of plaster of paris, and sets firmly in half to three-quarters of an hour. It is said to be of great adhesive power, not permeable to petroleum, a low conductor of heat, and not superficially attacked by hot water. Zinc white, white lead, or precipitated chalk may be substituted for plaster, but hardens more slowly.

If the above, which we clip from an exchange, is reliable, it would seem to be just the thing for the lining of barrels to be used for coal oil. For aquariums, also, it would be well adapted.

BESSEMER STEEL IN PENNSYLVANIA.—The Pennsylvania steel works, at Baldwin, near Harrisburg, are now making four heats, or about fifteen tons of Bessemer steel per day, and give employment to one hundred hands. The steel is shipped to the Cambria iron works at Johnstown, where it is manufactured into steel rails. The steel company have probably by this time a rolling mill in operation, for the manufacture of steel rails.

THE BROOKS INSULATOR IN FRANCE.—This American invention has been pronounced by a French commission superior to all others exhibited in Paris. It is an iron hook, cemented into an elongated glass vase. This vase is cemented into a hollow cast cylinder, and the whole saturated with paraffine. The French Government has sent Mr. Brooks a very delicate differential galvanometer, to test the insulators which he is making for the French telegraph.

Scientific Miscellany.

THE ELECTRICAL PHENOMENA OF JANUARY 9TH.—Our readers will recollect the mention made in our issue of February 29th, of the remarkable appearances observed in the Rochester telegraph office. The same were also observed in the Buffalo and Cleveland offices. A writer in the *Tribune* of March 11th, thus speaks of them in connection with the sun-spots noticed at the same time: "From sketches of a group of sun-spots, observed between the 6th and 11th of January, it appears that interesting changes took place on the 9th inst. The observations were made at 9 A. M. and 4 P. M. One part of the group appeared to have performed a *retrograde rotation*, toward the central and largest spot. The motion was very rapid, estimated at about 300 miles an hour, in a direction contrary to the sun's rotation. The large central spot had rotated in a similar direction, with a velocity much slower than the smaller spots. The phenomena did not seem accounted for by the apparent change of place of the group by the sun's rotation, and consequent change in perspective. It does not seem improbable, therefore, that the recent phenomenon may have owed its origin directly to an electrical influence from these spots upon the crust of the earth, or to an electrical disturbance of the atmosphere brought about through these spots without the usual accompanying phenomenon of Aurora Borealis. If, as has been conjectured, the sun revolves in a vast electrical current, the friction of its enormous surface between a positive and negative pole would doubtless be sufficient to produce the light and heat given out by that fiery orb. It would not be difficult to believe the spots on its surface caused by special currents of electricity to and from the various large bodies of our system, and perhaps in part by the especially attractive nature of metallic scoriae floating upon the liquid surface below. Sun-spots are frequently seen with a core of intense blackness than the surrounding dark portions of the *umbræ*, as they are called. This black core, known as the *nucleus*, if seen in space would very possibly be too bright to be regarded with impunity. Both nucleus and umbra are thought to appear black as an effect of contrast with the dazzling electric light of the solar photosphere. The question suggests itself, may not this dark nucleus indicate the solid portion of the spot, and the seat of disturbance in some of the electrical phenomena which are from time to time witnessed in our earth, and cannot be accounted for in other ways? The speculation possesses no little interest."

EXPLOSION OF AN OXYGEN RESERVOIR.—Dr. Wilkinson sends the *Journal of the Franklin Institute* the following account of an explosion of a large copper flask used for preparing oxygen. Two or three pounds of the oxygen mixture was put into the flask, which holds about four quarts; the cap being secured tightly, it was placed on a furnace upon a bed of hot coals, an india rubber tube attaching it to a bag of the same material. It took some time before the gas commenced to make. When it did come, the flask was red-hot; then it came off freely. Just as it was about ceasing, a tremendous explosion occurred, throwing a large 12-foot table to the ceiling, smashing every pane of glass in the laboratory, hursting open all the doors, and throwing the operator, Mr. Zineker, through a door into an adjoining room. The exact composition of the explosive mixture which was formed, is doubtful. "Although," says Dr. W., "oxygen is often made in a glass flask with impunity,—when a metallic flask is used, the gas is raised to a temperature of nearly 1,100°;—sufficient to decompose the hydro-carbon of which the bags are composed. Passing the gas through a wash-bottle would prevent such an accident."

THE MASTODON IN INDIANA.—At a meeting of the Chicago Academy of Sciences in November last, Dr. Meyers described the finding of the bones of the mastodon presented by him to the Academy. The locality was discovered by a farmer named Trush, in Noble county, Indiana, while digging a drain. Dr. Meyers purchased the bones already found, and also the privilege of making further explorations. He associated with himself Dr. Stimpson, of Chicago, and the two spent several days in superintending the excavations. They were rewarded by the finding of three skeletons; one of which was of a young animal, and two of which were so nearly perfect that they could be mounted. They lay at the depth of four or five feet, in a stratum of peat overlying blue clay containing lacustrine shells. The place was a recently-drained swamp. Among the bones were found several fragments of tree branches, some of which had been gnawed by the beaver. Ancient heaven-dams are abundant in the region.

THE MASTODON IN KANSAS.—John D. Parker, of Topeka, Kansas, sends the *American Naturalist* a photograph of a vertebra from a skeleton said to be imbedded in the mud of a stream in that region, where explorations are just now unsafe, on account of Indians. One rib has been detached and ground up into powder by the savages, for medicine. The vertebra was examined by Prof. Wymau, who pronounces it that of a mastodon.

HYDRIODIC ACID.—Prof. Winkler uses the following improved process in order to avoid loss of iodine, which is not uncommon in the official method, besides yielding an acid of much greater strength, if desired. Bisulphide of carbon is saturated with iodine in a tall cylinder or flask, and a sufficient quantity of water is poured on, according to the proposed strength of the acid. The tube from the sulphureted hydrogen apparatus reaches to the bottom of the cylinder, and the gas is decomposed in the same manner, while the sulphur as it separates dissolves in the bisulphide. As soon as the latter is decolorized, the current of gas is stopped, and the watery solution is separated from the oily solution of sulphur by means of a moistened filter. After heating it for a short time at the boiling point in a retort, the acid will be chemically pure, while the bisulphide is also recovered by simple distillation. For the preparation of hydrobromic acid this process is not applicable, because it is not possible to prevent, altogether, the formation of sulphide of bromine.—*Druggists' Circular*.

IODIDE AND BROMIDE OF SILVER.—*Aqua Ammonia* is the readiest means for distinguishing iodide and bromide of silver, the latter being quite readily soluble in ten or twenty times its bulk of ammonia, while iodide of silver at the ordinary temperature requires so large a quantity as to appear practically insoluble. On the other hand, while the iodide of potassium is readily dissolved by alcohol, the bromide of potassium is but slightly soluble. Nitrate of lead produces a yellow precipitate with iodide, and a white one with bromide of potassium. Corrosive sublimate gives no precipitate with the bromide, but the yellow or red one with iodide of potassium. They also differ somewhat in taste; the bromide resembling ordinary salt, while the iodide has an acrid, metallic, and somewhat bitter taste.—*Druggists' Circular*.

RUBIDIUM.—Rubidium is a white metal, brilliant and much resembling silver, although it has a scarcely perceptible tinge of yellow. It is more electro-positive than potassium, takes fire upon water, and burns with a flame that can scarcely be distinguished by the eye from potassium. It also burns with brilliancy in chlorine, and in the vapor of bromine, iodine, sulphur, and arsenic. In the air it oxidizes instantly to a bluish-gray suboxide and takes fire, after a few moments, more easily than potassium. At 10° Fah. it is soft like wax, at 58° it is like iron, and at 100° it melts, and at a red heat is converted into a blue vapor with a shade of green. Rubidium derives its name from the Latin word *rubidus*, "dark red,"—owing to the existence of two red lines of remarkably low refrangibility, which it produces in the spectrum. It is found in lepidolite;—and in the mother liquor of mineral waters.

A LAKE OF BOILING WATER.—The following is from the La Crosse, Wis., *Democrat* of Feb. 15th:—An explosion occurred at the artesian well that has been sunk to the depth of 280 feet, midway between the river and the bluffs. The drill had been working through a substratum of dark porous rock for five hours, and had been making rapid progress, when suddenly the machinery stopped, the rods became violently agitated, and a deafening explosion ensued, followed by a stream of boiling water, gushing with mighty force through the tube from the depths below. The upward pressure of the water is not less than 200 pounds to the square inch. The mean temperature is about 133 Reaumur. Hugh Miller mentions a similar case at Inverness, in Scotland, where boiling water has flowed for over seventy years, and also the famous hot well at Stuttgart, in the Hartz Mountains, in Germany. The Geysers, or boiling springs of Iceland, are no doubt operated by the same natural cause. Dr. Percival, late State Geologist, was of the opinion that far beneath the bed of the Mississippi there existed another stream flowing in the same direction, of much greater magnitude, and whose waters were of a much higher temperature than the waters of the river.

The well has been visited this afternoon by crowds of citizens, and the phenomenon has given rise to much speculation.

The extensive vineyards of Hon. Edwin Flint and George A. Metzgar are in imminent danger of being submerged by the boiling flood. The snow for a space of about six acres has entirely disappeared.

THE POPE AND MR. PEABODY.—A Rome letter says: George Peabody, with Hon. R. C. Winthrop, was presented to his Holiness last week by Mr. Hooker, late Secretary of the United States Legation. The Pope was fully aware of the character of his visitor, whom, with Messrs. Winthrop and Hooker, he requested to be seated in his presence, an unusual mark of distinction. A delicate token of Pio Nono's appreciation of Mr. Peabody's universal benevolence was afforded by the Latin quotations from Holy Writ, showing the blessed quality of charity, which he wrote with his own hand under some photographic likenesses of himself, which he presented to the party as souvenirs of the visit. On returning from the Pope's audience, Mr. Hooker presented his friends to Cardinal Antonelli. The conversation turned on the hospital of San Spirito, among other charitable institutions, and Mr. Peabody no sooner returned to his hotel than he forwarded a check for 1,000*fr.* to the cardinal in aid of the hospital's funds.

PETROLEUM FOR STEAM FUEL.—Preparations are being made in this city to give a thorough, practical trial to test the value of petroleum for steam fuel. The California Steam Navigation Co's steamer *Amelia*, plying between this city and Napa, is being fitted up with Foote's apparatus; while Capt. White's apparatus is being placed upon one of the city steam fire engines. Another of the latter is in process of construction at the *Ætna* foundry, to be used under the boilers employed for driving the machinery of that establishment. The result of these several experiments can scarcely fail to give a pretty satisfactory conclusion to this much-talked-of problem. Experienced engineers who have seen the preliminary trials, already noticed, express much confidence in the full success of the enterprise.

TEN DAYS TO NEW YORK.—By contracts already entered upon, it is stated that the Union and Pacific Railroad Companies will have their rails laid, on or before January next, to points which will leave but 512 miles to complete the connection. This gap will be filled by stage inside of three days' time, so that we may reasonably hope to be able to make the distance between San Francisco and New York in ten days, by the first of January next.

DISAPPEARANCE OF A LAKE.—An exchange tells us that the water of Ottawa Lake, in Monroe County, Michigan, has recently disappeared. The teamsters noticed that the holes in the ice where they watered their cattle, were crowded with fish. The usual work was abandoned, and hundreds of men with axes and crow-bars were soon busily engaged in cutting and raising huge pieces of ice, and then lifting the fish, some of which were dead, some alive, and some frozen fast in the ice, for the water having departed from the lake by some subterranean passage, the vast sheet of ice lay on the bottom. For three days immense quantities of fish were carried away, principally pickerel and bass, while vast quantities of white fish were left to rot on the ice and in the mud,—for mud and ice are all that is left of Ottawa Lake. Numerous pieces of the ice are left standing on edge, like so many gravestones. The lake, or rather its bed, or graveyard, presents a novel scene. Some say the water will return by the same source by which it departed, bringing a fresh supply of fish with it—for Lake Erie is supposed to be its headquarters. Meantime the farmers in the vicinity greatly feel the loss of the departed waters. About seven years ago this lake departed in the same way, and old men say it departs and returns periodically.

ANTHRACITE GUNPOWDER.—A patent for this article has been taken out by Ehrhardt of London. It is composed of nitrate and chlorate of potash with mineral carbon. It is said to burn slowly in the open air, like common gunpowder when wet; but if confined, it explodes with great force. The coal preferred for its manufacture is anthracite. Nitrate of soda may be used instead of nitrate of potash. The proportions used vary according to the purpose for which it is intended. For blasting granite or other hard rock, one part of chlorate of potash, two of nitrate, and three parts of coal are used.

NEW THEORY OF METEORIC SHOWERS.—Sir John Herschel has recently advanced the theory, not wholly new, but never before supported by well known facts, that meteoric showers are simply the light caused by the collision of the earth's atmosphere with the tenuous substance of a comet. Prof. Adams, who shared with Leverrier the credit of discovering the planet Neptune, not only accepts this theory, but attempts to establish the identity of the comet through which the earth recently passed, with Tailor's comet, whose orbit apparently coincides with that which, if a comet, the recent visitor would have taken.

ATOMIC AND COMBINING WEIGHTS.—In a new text book of Inorganic Chemistry, recently published by Messrs. Eliot and Storer, Professors in the Massachusetts Institute of Technology, the atomic weights are not given as the combining weights. With the exception of those for H, K, Na, Li, Cs, Rh, Ag, P, As, Sb, N, Bo, Fl, Cl Br, I, the old combining weights must be doubled to become atomic weights.

HUNTER'S POINT DRY DOCK.—All the machinery for the Dry Dock at Hunter's Point is in place, and steam was got up for the first time yesterday to make a trial of the pumps. A large force of men will be set to work excavating at the mouth of the dock. The bad weather has hindered operations for weeks, but the work is now going on again rapidly.

ROBERTSON'S RAILROAD TRACK LAYING MACHINE was to have had a thorough practical trial upon the Sacramento and Vallejo road during the past week. Railroad men manifest much interest in the success of the experiments.

CALIFORNIA LABOR EXCHANGE.—The Trustees of this association held their first meeting under the organization on Wednesday. Arrangements will soon be made to open an office and attend to business.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
April 18, 1883.
Financial.

Our domestic money market exhibits renewed activity, the result of legitimate demand for money, growing out of spring trade requirements. We quote 1 per cent. per month as being the figure at which the savings and loan associations are affording accommodations, repayable in instalments. Good paper is done at 1½ per cent. per month. Long loans are effected at 10½ per cent. per year. Bullion is in greater supply, and prices show a considerable recession within the past month. Of late the margin required upon mining stock collaterals has been somewhat extended, and security of this nature has not been quite so acceptable to our banking institutions; however, the rates upon which advances are obtained are far from those ruling during the excitement of a few years ago. We quote the range at from 1¼ to 2 per cent., the greater proportion being done at 1½ per cent.

The *Stockton Herald* says that the stockholders of the Stockton Savings and Loan Society held a meeting on April 4th, for the purpose of taking the proposition to increase the capital stock of the company into consideration. It was unanimously voted to increase the stock one hundred and fifty thousand dollars, so that now the capital stock of the company stands at a quarter of a million of dollars, in 2,500 shares of \$100 each. The affairs of the Society are in a highly flourishing condition.

City Stocks.

During the week under review, we note considerable sales of Spring Valley Water Company stock, at \$64 50@65. Early in the week, Sutter Street Railroad commanded \$11 50 seller 30, and San Francisco Gas Company \$75 per share. In addition to the local incorporations mentioned in our last issue, that have disbursed dividends the present month, we mention the following: California Marine Insurance Company, 2 per cent. per month for the quarter ending March 31st, payable since 15th inst.; Fireman's Fund Insurance Company, 1 per cent. per month for the same period, payable on the 20th inst.; California Steam Navigation Company, 1½ per cent. due since the 15th inst. The Omnibus Railroad Company paid a dividend of ¼ per cent. on their capital stock on the 15th inst., being the first disbursement of a like nature since September, 1867.

The Bank of California disbursed its usual dividend—1 per cent. per month—on its capital stock, on the 15th inst.

G. W. Mowe, Esq., of Sacramento, has been nominated Insurance Commissioner by the Insurance Companies, and the Governor has endorsed their selection. The law takes immediate effect.

Mining Share Market.

Since our last issue, the mining share market has been exceedingly active, and nearly every stock on the list met with a serious decline. This was mainly superinduced by the announcement that the drift from the Imperial-Empire shaft had passed the point where it was expected the ledge would be encountered, thereby affecting the whole list. The recent rise was mainly dependent upon the prospective developments of this shaft, and the disappointment at present is very general; however, it is unquestionable that all masterly deep-assured veins, as stated in our annual review, to which class the Comstock belongs, are known to be more or less marked by certain eccentricities, not only in the line of their strike, but also in the disposition of their ore channels. All mining experience in other countries and the science of geology teach this to be true. Reasoning by analogy, then, we may expect the same thing to occur in this as in other veins of great power. But from the same sources we learn that these mother veins maintain the continuity of their ore bearing channels to the greatest attainable depths. These sometimes suffer serious displacement and local interruptions, but never cease to exist nor are wholly lost. As in the case of the Comstock, the mass of ore usually increases in bulk, but diminishes in richness somewhat, when certain points beneath the surface are reached; after which it remains nearly the same, rarely ever, as experience shows, becoming exhausted, or shifting wholly beyond reach. Keeping these precedents in view, and relying on the teachings of science, our faith remains firm in the persistence of the ore channels and the continued productivity of the Veta Madre of Nevada.

At the close, in the afternoon session, a sharp reaction took place, and Imperial, Alpha, Overman, etc., exhibited a very decided advance over sales at the morning session. It is to be hoped they have reached the vein in the Imperial drift.

Returns of bullion from Nevada for March foot up to the handsome amount of \$1,019,000 in round numbers. Of this sum \$771,000 was received from Storey county; from Austin we received \$203,000; and Orona and other points in Humboldt sent us \$35,000. Considering the almost impassable condition of the roads, the above is a very gratifying exhibit of the wealth which the mines of Nevada are capable of supplying. With the return of fine weather and improved traveling, the gold and silver stream will undoubtedly be quickened and enlarged. The miners will also have a far better opportunity to unearth and develop the treasures of their various claims, work in many having been much retarded by the severity of the past winter. Prospects for the present year are more encouraging, and mines will be worked which last year were suffered to be idle. Renewed vigor and activity must ensue upon the enlarged and lucrative field of operations resolved upon, and some of which are already commenced.

At Silver City, Idaho Territory, the Revenue Assessor makes returns of \$142,516 as the amount of bullion assayed in that place during the month of March.

In the comparative table published in our last issue we find that the combined aggregates for the first quarters of 1866, 1867 and 1868 are as follows:

Bullion produced.....	\$6,528,368
Dividends.....	1,224,890
Assessments.....	1,262,880

SAVAGE—exhibited considerable activity under a material decline, receding from \$175 to \$154, and at the close selling at \$162. During the week ending April 11th, the mine yielded 1,453 tons of ore, valued at \$39 44 per ton, against 1,447 tons, valued at \$29 22 per ton, the previous week. During the period under review, the Potosi chimney, on the fifth and sixth floors above the third station, yielded some fine ore, which greatly assisted in bringing up the above average value. In the south mine, on the fourth level, the breasts are reported to look well, but the ore is not so good a quality as found in levels above. The south drift is about forty feet from the line, still carrying good ore in the face. The winze to the fifth station is down upwards of eighty-five feet on the incline, and it is not looking so well as formerly. On the fifth station the south drift had fine ore until recently; now the face is reported to be quite poor.

CROWN POINT—met with the usual inquiry, advancing from \$2,100 to \$2,290, dropping to \$2,090, and at the close realizing \$2,250. A telegram from the 17th inst., says: "No improvement in drift; north and south on east body great improvement—looks encouraging; eight feet of good average ore." The south drift, on 700 level, does not look as well as formerly, but overhead it continues to look fine on all the floors. The first clean-up for April from two mills is at hand, amounting to \$30,000, with two other mills for same time yet to hear from. The average yield is about \$40 to the ton.

IMPERIAL—became quite active toward the close of the week, selling at a marked decline, falling from \$208 to \$210, rallying to \$243, and closing at \$270. On the 13th inst., the drift from the shaft, on the 900 level, was in 140 feet, without any favorable developments. On the 17th, the drift showed no change, requiring blasting to extract the porphyry. The receipts of bullion to date for April account foot up \$12,491.

OVERMAN—was also seriously affected by the general recession, opening at \$221 50, gradually dropping to \$150 under large sales, and closing at \$175. Nothing of importance from the mine. **GOLD HILL QUARTZ** receded from \$150, assessment of \$30 delinquent, to \$110. The 450 level is at present furnishing all the ore, which appears to be plenty and somewhat better. The recent yield of 110 tons amounted to \$19 41 per ton.

KENTUCK—was less inquired for than the previous week, selling within a range of \$487 50@490, and at the close obtaining \$460. The receipts of bullion on April account reach \$26,247. A dividend of \$10 per share is payable since the 15th inst.

GOULN & CURRY—declined from \$670 to \$535, and closed at \$600. The accumulated product of this mine has been sold to outside parties instead of reducing the same at their own mill. We learn that David Bowie, the present efficient Secretary of the company in this city, will take entire charge of affairs at Virginia about the first of next month, Mr. Janin, the Superintendent, having resigned his position. The bullion receipts during the first three months of 1868 amounted to \$14,476, the same coming to hand early in January.

CHOLLAR-POTOSI—opened at \$320@327 50, rapidly declined to \$250, and closed at \$275. For the week ending April 9th, the ore product amounted to 423 tons, and with the exception of 22 tons from the old Santa Fé level, came from the Blue Wing level. The latter level shows no improvement, and work on the north Santa Fé has been suspended. It is said that the rock on the bottom of the shaft has changed, and sinking is much easier.

HALE & NORONHO—is quiet; sold at \$2400 seller 30. The actual bullion returns for March foot up \$90,937 24. The present yield of the mine shows a 65 per cent. assay value of about \$30 to the ton. On the 15th inst. the shaft had been sunk and timbered to a further depth of 72 feet.

EMPIRE—was dealt in more than usual, dropping from \$325 to \$225, and at the close sold at \$250. The drift has been carried forward 156 feet, showing no favorable developments. According to estimates this is already beyond where it was thought the vein would be reached.

OPHIR—declined from \$202 50 to \$190, and closed at \$214. Sinking in the new shaft has been progressing steadily since the 10th inst., and the machinery works admirably; the rock is hard but shelly, and very easy to sink in. The back water has pretty well drained in, but the pump is at present discharging 8,000 gallons per hour—its capacity being 15,000 gallons when working steadily. The depth to be attained before drifting was fixed by the Board at 600 feet and no change in this respect has been determined on. The expenses of this company are very light, averaging since December but \$7,000 per month, at which rate it will take some time yet to exhaust their cash balance. Depth of shaft, 190 feet.

SILVERA NEVADA—sold at \$30@18. An assessment of \$10 per share was levied on the 14th inst. **UNITED STATES M. Co.** sold at \$20@22 50. An assessment of \$3 per share was levied on this stock on the 11th inst.

The sales in the Board during the past week have been as follows: Regular sessions, \$2,211,025; open sessions, \$305,047—total, \$2,516,072; and since the first instant, aggregate \$7,587,259.

ACROSS THE SUMMIT.—A *Tribune's* Omaha special says that the Union Pacific Railroad crossed the summit of the Rocky Mountains yesterday (17th). The rails on the summit were laid by T. C. Durant, Vice President; Sydney Dillon, Director; Gen. Dodge, the Chief Engineer, and other officers of the Company, assisted by a number of army officers.

NORTHWEST COAST SURVEY.—The U. S. steamer *Saguaw* will be engaged this summer in making surveys along the shore of Alaska, and the islands recently acquired from Russia. She will sail on Monday next.

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- Changing the Address.**—No charge is made for changing the address of this paper. To give all necessary information, write us plainly as follows: "Change address of the Mining and Scientific Press from P. O. at ... P. O., County, ... State, to ... at ... P. O., County, ... State." 16-1

Fluctuations in Leading Mining Shares for the past Six Months.

NAME OF COMPANY.	Sept. 1st.	Sept. 10th.	Sept. 20th.	Oct. 1st.	Oct. 10th.	Oct. 20th.	Nov. 1st.	Nov. 10th.	Nov. 20th.	Dec. 1st.	Dec. 10th.	Dec. 20th.	Jan. 1st.	Jan. 10th.	Jan. 20th.	Feb. 1st.	Feb. 10th.	Feb. 20th.
Gold & Curry, per ft.	825	820	860	275	310	310	375	320	375	315	350	357½	310	350	350	435	435	530
Opbhr.	57½	75	51	41	37	50	60	62½	62½	60	62½	60	60	60	60	55	55	168
Admiral	125	140	130	110	125	116	130	130	130	104	104	104	104	104	104	104	104	169
Chollar-Potosi	4.0	331	355	195	185	202½	190	135	131	123	121	114	119½	215	3,400	191	225	210
Hale & Norcross	1,100	850	800	745	880	875	810	840	840	890	1,160	1,240	2,200	2,900	...	4,100	...	...
Shasta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Danvers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wide West	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bullion	25	21	21	15½	15	15	8	6½	15	17½	19	31	42	37	35	42	70	60
Real del Monte	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
El Dorado	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Overman	62	66	55½	33	76	61	48	40	44	50	78	107	86	71	80	94½	200	197½
Sierra Nevada	14	7	4	3½	13½	9½	23½	23½	35½	12½	15	17	24	15½	12	18½	16	16
Yellow Jacket	455	455	465	310	380	375	400	420	420	475	720	790	675	725	750	830	1,210	1,250
Baldie	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North American	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baltimore American	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sacramento	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lady Bryan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Imperial	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crown Point	810	715	750	560	890	595	660	660	690	610	690	760	730	1,000	1,220	1,280	1,900	1,850
Belcher	115	450	135	75	110	...	110	...	105	...	101	134	13½	150	182½	195	300	285
Alpha	450	...	...	...	450	...	450	...	...	...	...	...	...	...	...	...	...	...
Empire M. & M. Co.	175	...	175	145	175	...	175	...	107½	...	107½	...	...	...	...	...	...	...
Confidence	50½	50	...	...	36	35	...	...	...	...	...	...	...	...	...	...	...	...
Justice and Independence	...	...	8½	9	2	12	...	...	...	...	...	...	...	...	...	...	...	...
Eschscholtz	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Keokuk	260	200	243½	200	23½	...	140	160	160	165	220	220½	194	202	262	300	285	285
Gold Hill Q. & M. Co.	...	...	...	...	100	90	140	105	132½	...	76	80	77	80	92½	95	100	96½
Segregated Belcher	...	6	...	5	5½	...	3½	5	4½	...	7½	...	11	10	8½	9	14	19

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and Date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY	DAY
Amador Co., dividend, \$5 per share. Payable Jan 10 at 11 a.m. March 15, \$1. ...	Payable Jan 10	15
Bacon M. & M. Co. ... Meeting May 8	May 8	8
Bullion, March 5, \$15. ... Sale May 6	May 6	6
Belcher B. & A. Vir. ... March 13, \$3. ... April 13	April 13	13
Belcher, Vir. ... March 13, \$5. ... April 18-May 14	April 18-May 14	14
Black Lead Co., Lander Co. ... March 25, \$10. ... May 1-May 18	May 1-May 18	18
Consolidated Virginia. ... Special Meeting May 9	May 9	9
Confidence, Storey Co. ... Mar. 25, \$17. ... April 30-May 20	April 30-May 20	20
Crown Point, Gold Hill, Nev. ... Special Meeting May 11	May 11	11
Chollar-Potosi, Calaveras Co. ... March 23, \$5. ... April 24-May 11	April 24-May 11	11
Chidona, Mexico, March 23, \$5. ... April 24-May 11	April 24-May 11	11
Chilkat Mt., Nevada Co., March 16, \$1.50. ... May 12-July 6	May 12-July 6	6
Danvers, Lyon Co., Nev., April 2, \$3. ... May 6-May 25	May 6-May 25	25
Empire M. & M., Nev., dividend \$6. ... Payable May 15	May 15	15
Folsom St. & Ft. R. R., March 10, \$5. ... April 11-April 27	April 11-April 27	27
Gold Hill, Storey Co., Nev., March 13, \$20. ... April 11-May 8	April 11-May 8	8
Golden Rule, Tuolumne Co., div. 50¢ per sh. ... Payable Feb 26	Feb 26	26
Gold Hill Q. & M. Co. dividend, \$7.50. ... Payable Dec 16	Dec 16	16
Hope Gravel, Nevada Co., April 2, \$1. ... May 4-May 25	May 4-May 25	25
Hale & Norcross. ... Stockholders' Meeting April 30	April 30	30
Honest Miner, Lander Co., March 25, \$10. ... May 1-May 18	May 1-May 18	18
Income. ... Annual Meeting April 1	April 1	1
Jo Lane, Lander Co., Nev., March 25, \$10. ... May 1-May 18	May 1-May 18	18
Kenia, div., \$5 per share. ... Payable March 14	March 14	14
La Blanca, Sonora, Mex., March 27, \$2.50. ... April 30-May 16	April 30-May 16	16
New Idria Quicksilver. ... Annual Meeting, April 27	April 27	27
Newton, copper. ... Annual Meeting, May 13	May 13	13
Nevada, Nevada Co., March 27, \$1.50. ... April 28-May 19	April 28-May 19	19
North Star Lander Co., Nev., dividend. ... Payable Nov 23	Nov 23	23
Morning Star, Alpine Co., Feb 14, \$1. ... April 11-May 4	April 11-May 4	4
Rippon. ... Annual Meeting, May 19	May 19	19
Sierra Nevada, Nevada Co., March 16, \$1. ... April 24-May 11	April 24-May 11	11
Richland, Lander Co., Nev., March 4, \$1. ... April 21	April 21	21
Sierra Nevada, Storey Co., Nev., April 14, \$10. ... May 19-June 5	May 19-June 5	5
Savage, Virginia, Nev., dividend. ... Payable April 15	April 15	15
Sanfilippo, Silver City, dividend. ... Payable April 10	April 10	10
S. F. & Castle Dome, Arizona, Feb 26, 10¢. March 30-April 21	March 30-April 21	21
Tellurium, Amador Co., March 31, \$1. ... May 7-May 17	May 7-May 17	17
United States, Storey Co., Nev., April 11, \$3. ... May 21-June 9	May 21-June 9	9

Those marked with an asterisk () are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, April 17, 1868.

MISCELLANEOUS STOCKS.

United States 7-10ths Bonds, June issue. ... 77 78

Legal Tender Notes. ... 74½ 75

California State Bonds, 7s, 1857. ... 95 96

San Francisco Bonds, 10s, 1851. ... 102 103

San Francisco City Bonds, 6s, 1855. ... 85 86

San Francisco City and County Bonds, 6s, 1858. ... 84 84

San Francisco City and County Bonds, 7s, 1859. ... 84 84

San Francisco City and County Bonds, 7s, 1862. ... 84 84

San Francisco City and County Bonds, 7s, 1864. ... 84 84

San Francisco City and County Bonds, 7s, 1865. ... 84 84

San Francisco City and County Bonds, 7s, 1866. ... 84 84

San Francisco City and County Bonds, 7s, 1867. ... 84 84

San Francisco City and County Bonds, 7s, 1868. ... 84 84

San Francisco City and County Bonds, 7s, 1869. ... 84 84

San Francisco City and County Bonds, 7s, 1870. ... 84 84

San Francisco City and County Bonds, 7s, 1871. ... 84 84

San Francisco City and County Bonds, 7s, 1872. ... 84 84

San Francisco City and County Bonds, 7s, 1873. ... 84 84

San Francisco City and County Bonds, 7s, 1874. ... 84 84

San Francisco City and County Bonds, 7s, 1875. ... 84 84

San Francisco City and County Bonds, 7s, 1876. ... 84 84

San Francisco City and County Bonds, 7s, 1877. ... 84 84

San Francisco City and County Bonds, 7s, 1878. ... 84 84

San Francisco City and County Bonds, 7s, 1879. ... 84 84

San Francisco City and County Bonds, 7s, 1880. ... 84 84

San Francisco City and County Bonds, 7s, 1881. ... 84 84

San Francisco City and County Bonds, 7s, 1882. ... 84 84

San Francisco City and County Bonds, 7s, 1883. ... 84 84

San Francisco City and County Bonds, 7s, 1884. ... 84 84

San Francisco City and County Bonds, 7s, 1885. ... 84 84

San Francisco City and County Bonds, 7s, 1886. ... 84 84

San Francisco City and County Bonds, 7s, 1887. ... 84 84

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, April 17, 1868.

Do. Superfine. ... 6 25

Corn Meal, 100 lbs. ... 3 00

Wheat, 100 lbs. ... 2 40

Do. No. 1. ... 2 30

Barley, 100 lbs. ... 2 30

Beans, 100 lbs. ... 2 50

Potatoes, 100 lbs. ... 1 25

Hay, 100 lbs. ... 1 00

Live Oak Wood, 100 cords ... 9 00

Beef, extra, dressed, 10 lbs. ... 11 12

Sheep, on foot, 10 lbs. ... 3 00

Hogs, on foot, 10 lbs. ... 9½

Hogs, dressed, 10 lbs. ... 10 12

GROCERIES, ETC.

Sugar, crushed, 10 lbs. ... 14½

Coffee, Costa Rica, 10 lbs. ... 17 17

Do. Rio. ... 17 17

Tea, Japan, 10 lbs. ... 65 65

Do. Green. ... 60 60

Hawaiian Rice, 10 lbs. ... 9 9

China Rice, 10 lbs. ... 6 6

Corn Oil, 10 lbs. ... 42½

Cane Oil, 10 lbs. ... 45 45

Butter, 10 lbs. ... 30 30

Butter, 10 lbs. ... 30 30

Butter, 10 lbs. ... 30 30

Butter, 10 lbs. ... 30 30

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Chronicle, April 4th: A spur of good ore about six inches wide was struck in the Pennsylvania tunnel yesterday. They feel satisfied their ledge is not far off.

The Rippon tunnel during the past few days has been passing through a strata of fair looking quartz, and the workmen are now somewhat impeded in their labors by an influx of water. The indications for striking their ledge within a short time are very flattering.

Amador County.

Jackson Ledger, April 11th: The result of rock worked at the Coney & Bigelow mill, from the Kennedy mine, in returns exceeded the most sanguine expectations of the proprietors. They took their rock from a tunnel 90 feet south of the old shaft. At this point they have from 6 to 8 feet of solid ledge, and strata of rock to the width of 16 feet. This was taken out promiscuously for the purpose of giving the mine a general test before putting on permanent improvements. Since the most favorable returns they have decided to go on as previously arranged.

Another proof that the placer mines have not yet "petered," is that F. A. Serine and George Hutchinson, near Pine Grove, have been panning out from \$5 to \$50 per day for the last month, and feel confident that there is plenty of the same dirt left. There is no telling what they might have made by sluicing. One piece, weighing over \$40, and several half-ounce *chispas*, looked exceedingly tempting.

The Amador Mining Co., formerly known as the Eureka, at Sutter Creek in this county, has declared their usual dividend of \$6 per share, for the month of March, payable on the 7th, and an extra dividend of the same amount, payable on the 10th, making in the aggregate the handsome sum of \$52.440.

The B. B. M. Co. are progressing rapidly with their work. They have passed through the raise in the hard rock, and the ground being easily worked a drift will be run at this point. The water is about the same as last week.

The editor calls the attention of persons desiring to purchase mines, to the Moore mine, one mile south of the Coney & Bigelow claim, as one likely to well repay its owners. It is for sale.

Calaveras County.

Chronicle, April 11th: Like the generality of mining camps at this season of the year, Rich Gulch is dull, but the prospects for the future are flattering. Quite a number of gravel claims are being worked and paying well. Work on the quartz leads in that vicinity, has not been commenced this spring, but active preparations are being made, and the coming season will develop the fact that Rich Gulch is on the great quartz belt which extends nearly through the State. Miners in that locality are energetic and industrious, and with the assistance of the capital promised, success is certain.

At Railroad Flat, acres upon acres have been washed away, and yet the work has but fairly commenced; 160 inches of water are used. Operations in quartz are being actively pushed forward in that locality. Mr. Said, who purchased the famous "Petticoat lead," has erected steam hoisting works, and has a large number of hands at work in the mine. The shaft has reached the depth of 30 feet, and the rock being taken out will pay at the rate of \$100 per ton. Mr. Said will prospect the lead until satisfied in regard to its extent and richness before erecting a mill. A large number of claims are being successfully worked in that vicinity. The "New York boys," Post & Co., Quedell & Co., and others, are obtaining flattering prospects.

On Saturday last we were shown the amalgam taken from six tons of "Petticoat" quartz, at Railroad Flat. It assayed \$612.

The Mokelumne Hill correspondent writes: The Wet Gulch and Chaparral claims are peculiar, the country rock on one side being limestone, and on the other syenite. The pay sbute or chimney extends over 3,400 feet of the vein, prospecting alike throughout this distance. They have a shaft on a part of the claim called the Chaparral, that is 130 feet in depth. At this depth the vein is 7 feet thick, and what is better than size, is that it is all pay rock. A few tons of the average rock was taken at a heavy expense to Harris' mill, at Sandy Gulch, a distance of 20 miles, part of the way on the backs of mules, which yielded \$22 per ton.

The Carson correspondent of the *San Andreas Register*, of April 11th, says: Everything here is as "dull as a hoe." Gabriel's mill is the only one in motion, and last week he made a good clean up. The Union mine has not yet squared the yards, but I think will soon do so.

Mariposa County.

Gazette, April 10th: The mill recently erected by Bogan & Kerrins, on Bear Creek, is now completed, and in successful operation. Water is the motive power of this mill, and works eight 650-lb stamps, making 60 strokes per minute, and capable of crushing 10 tons of rock every 24 hours, and this ponderous machinery is kept in motion by a small wheel about the size of a man's ordinary broad-brim hat. The vein from which the rock is procured, is a very promising one, being well defined, with perfect walls, and from one to two and one-half feet in thickness. The rock is estimated to yield not less than from \$12 to \$15 per ton. The mill is under the superintendence of Messrs. Snooks and Rogers, gentlemen of long experience in the business, and perfectly familiar with quartz mill operations.

Nevada County.

Transcript, April 7th: Brown's cement mill started up again yesterday, running upon excellent cement, and the companies engaged in this kind of mining are doing well. A number of gravel mines have started up and others will soon follow. The miners of this locality look forward to a lively and profitable season.

April 9th: The Pittsburg mill started up yesterday on a splendid lot of ore, and rock now coming from the mine is very rich. S. D. Merchant, the Supt., made some tests of the giant blasting powder and found it to work well.

April 14th: The Welsh Co., at Relief Hill, have struck the gravel channel for which all the companies in that locality have been prospecting, and the gravel pays as high as \$5 per car load. Four large companies are at work in this locality, and the success of the Welsh Co. has greatly encouraged the remainder and given new life to the place. The deep snow and heavy storms have impeded mining operations considerably during the winter in this locality. The miners hope for good weather and confidently expect large returns as soon as it comes.

Gazette, April 8th: Two loads of iron pipe passed through town yesterday, having been brought up from Timbuctoo for Weston, Holmes & Co., mining near Blue Tent. The owners are carrying on extensive mining operations at Timbuctoo, and last year they purchased the claims of the Gopher Co., on which they will commence piping as soon as the hydraulic apparatus can be put up. The pipes are 15 in. in diameter, and they purpose using 400 to 500 in. of water; besides, they will do much of the work of loosening and breaking down the banks of auriferous gravel by means of powder. One of the owners informs us that the Gopher claims prospect much better than their claims at Timbuctoo.

April 14th: The North San Juan correspondent writes that the miners in that locality are all engaged, and have hopes of large remunerations for their labor.

Some weeks ago a miner named Jos. Lopez, known here as "Portuguese Joe," struck an immensely rich pocket of decomposed quartz while running a cut in the bed rock, near the old Excelsior sawmill, on Rush Creek. We learn that he has taken out in the course of three weeks some \$30,000, and then sold the claim for \$7,000. One pan of the decomposed quartz is said to have yielded \$1,100. The quartz ledges on Rush Creek and the region round about are noted for their rich pockets, though as yet none of the ledges have paid for working regularly.

The South Yuba Canal Co. have reduced the charges for water on their line of ditches to 17 cts. an inch for 24 hours, day and night, 10 cts. for 10 hours, day water, and nine cents for 14 hours at night.

Grass Valley *National*, April 7th: The Dromedary mine which has been lying idle for a month or so, because of the difficulty of getting wood, will start up in a few weeks. The ledge in the Dromedary when the workmen left off was exceedingly rich.

April 9th: The dividing ridge between Wolf Creek and Deer Creek is attracting much attention on the part of miners. The Banner mine and the Whigham are on the northern slope, and the Norridgecock and McClellan are on the southern slope. The Eureka ledge is on the Wolf Creek side, and arrangements are about being made to run a tunnel from the level of that creek, so as to work the ledge at a great depth. It is also probable that the Annita Co., which owns the north extension of the Eureka, will run a tunnel from the Deer Creek side, and the two meeting together

will form a tunnel of 3,800 ft. in length, running in quartz throughout the whole distance.

April 10th: Yesterday Wm. B. Smart, who seems horn to good luck, picked up a piece of gold which was worth \$6, and today, at the head of Pike Flat, he found a specimen worth \$70. From the specimen found to-day he broke a small piece which he sold for \$20, to Harry Roberts, who crushed it and got \$26.50. The whole realized him \$70.

Grass Valley *Union*, April 7th: We observe many teams engaged in hauling quartz through the streets, from the mines to the mills. The strike at the Idaho, and a later one on Weimar Hill have given the prospecting interest of our town a sudden and healthy revival.

April 11th: A correspondent writes from Graniteville district as follows: At the Birchville mine there is seven ft. of snow. The tunnel of this company is now in 268 ft., and the rock is becoming more soft. For the last 50 ft. it has been pretty hard, though not sufficiently so to prevent being taken down by picking. So far no blasting has been required in the tunnel. The Jim which has been recently incorporated under the name of the Mutual Co., are making preparation to start their mill and mine, and will commence operations within two weeks. Their rock shows free gold, pretty freely. The Grizzly, at the head of Devil's Cañon, will, as soon as they can get in the balance of their machinery, finish their steam mill. They have been taking out rock all the winter, and will have a fine supply of ore to commence on in the spring.

The snow at Moore's Flat has almost gone, and the gravel companies have commenced work. Among these may be mentioned the St. Lawrence, the Illinois, the Piute and Hickey's. They are washing away in good earnest. For the last two weeks the boys have been helping the Kentucky Shaft Co. to forward their pump to Snow Point. At Wolsey's Flat, a mile below this, washing has been commenced on two or three claims.

Marks & Co. are running their claims, which adjoin the Boston, and we expect, when they make their clean up, to hear of great results.

EXCELSIOR.—The Grass Valley *National* of April 11th, learns the following concerning the mines at Meadow Lake. The weather has not been excessively cold. Eighty or a hundred persons have spent the winter at Meadow Lake. In the way of mining, work has been carried on all winter in the Mohawk and Montreal, Empire, U. S. Grant, and Kentucky. The first named company have had 15 or 20 men at work in their mine, and during the entire winter the work was interrupted but a few days. A track and chute to carry rock from the mine to the mill, which had cost \$3,000, was blown down in the early part of the winter. The damage will be repaired at an early day, when they will commence crushing, the mill having been kept in good repair. The Empire mine has also been yielding excellent ore.

Dutch Flat *Enquirer*, April 11th: We learn that the Empire Co. at Meadow Lake are taking out some splendid ore. It is described as sulphuretted rock, heavily loaded with gold. The snow is said to be not more than 17 ft. deep.

Placer County.

Dutch Flat *Enquirer*, April 11th: The Home Ticket Co., at Gold Run, cleaned up last week, after 19 days run \$2,500. The company are using 250 inches of water. They will work steadily as long as water lasts.

After a run of 15 days and nights, Taylor & Co. cleaned up the nice little "stake" of \$6,080. They use 400 inches of water.

About 150 feet of the Yuba Ditch washed away last week, but has since been thoroughly repaired and is now running full.

Kinder & Co. of Gold Run, after a run of 20 days cleaned up the sum of \$3,000.

Grass Valley *National*, April 4th: Cement claims in some portion of Placer County are seemingly in a depressed condition. Out of the four mills erected between Todd's Valley and Yankee Jim's, not one is now running. Of the three at Bath, but one has been running regularly.

Plumas County.

Quincy *National*, April 4th: From 12-mile Bar we have the following: The miners are all at work in their claims, have an abundance of water, and are in expectation of big results when they clean up. The Never Sweat Co. made a partial clean up last week, and took out \$1,320—the result of 30 days' work for three men. This is the only company that has done any cleaning up since the water season commenced, but all expect as good if not better pay when they do.

The following items are from Indian Valley: A. F. Blood has bought the quartz

mill and ledge of Light & Bro., in Genesee Valley. The Whitney mill has not been doing very well of late, though working good rock. Last week they prospected their tailings, and panned out 17 ounces of amalgam in a short time. Aschheim has 300 tons of rock at the Lone Star mill, ready for crushing as soon as he can get his new moriar in and ready for use. The rock is from the Trucks and Waterworth ledge, and prospects well.

Sacramento County.

The mines in this vicinity are yielding well, and we are informed that more dust is purchased at this time in town, than has been the case for three or four years past.

San Diego County.

The San Diego correspondent of the *Times* of this city, says: A gentleman from the Escendido Gold mine, in this county, recently informed me that they had struck it "rich" in that mine at last, and that they are taking out large quantities of ore that average \$50 per ton. As they are below the level of the water, they have some trouble in keeping it out; but, with an additional pump, which is now being put up, they expect to overcome this without much difficulty.

I also learn that a very fine ledge, seven feet in width, has been found recently in the Los Encinates Copper mine, which averages 25 per cent. pure copper, as per assays made of the ore in your city.

Santa Clara County.

It is reported, says the Santa Cruz *Sentinel*, that a man living in Watsonville, has made a discovery of gold in or on the margin of Pajaro Valley, paying \$15 to the pan.

Shasta County.

Courier, April 11th: Mr. Neff, a resident of this county, has been prospecting during the last winter on the head waters of Cottonwood. He informs us that he found gold in paying quantities on several bars near the head of the middle fork of Cottonwood, and in one gulch he panned out an average of \$3 per day. He states that the country at the head of Cottonwood was never prospected to any extent, but undoubtedly contains good placer mines. He intends to return in May, with a complete mining outfit, and will proceed to thoroughly test the richness of the mines he has discovered.

McPeberson & Co. have completed their flume at Piety Hill, and commenced sluicing operations. The flume is 400 yards in length. Three hydraulic pipes are kept in operation day and night. This claim is the most extensive as well as the most promising placer mine in the county.

The Johnson copper claim on Little Cow Creek, prospects very rich, and promises to be a valuable property when more fully developed. The main lode is about five feet wide, and the rock yields from 80 to 95 per cent. copper. The Pryor brothers are directing the work on this claim.

The Batchelder brothers have not despaired of the ultimate success of the South Fork mines, and purpose commencing work on some of their claims at an early day. Parties from Chicago, Illinois, who possess abundant capital, are expected to arrive in a few days, for the purpose of examining ledges with a view to purchase.

Sierra County.

Downsville *Messenger*, April 11th: The French claim on Barnes' Ravine, near Howland Flat, is paying from \$8 to \$10 per day to the man.

Orleans claim, on Little Grizzly, is said to have been paying at the rate of 350 ounces per week, for some time, working 16 men.

Monumental claim, the tunnel which caved last fall, has a new tunnel in to the old breastings, and will soon commence taking out pay.

The Fashion claim, at Montrose Hill, is paying well.

The Sawpit Flat correspondent gives the following items: The Buckeye Co. is working 18 men, and getting from \$16 to \$18 per day to the hand. They have water to wash their drift dirt daily.

The New York Co. is working 18 men, and have their yard full of wash gravel. They expect to realize a large amount of gold when water makes its appearance to wash the same.

The Union Co. is taking out dirt as rich as usual.

The Franklin Co. is laid up for want of ground, their claims being worked out.

The Eagle Co. is working 16 men, and are getting out pay grit very fast, and prospects are flattering as they advance into the hill.

The Mountaineer Co., at Weldon Ravine, is working day and night in driving their tunnel towards their supposed to be rich channel of gravel deposits. They are now in 840 feet with their tunnel, and may strike

gravel any day, to gladden the hearts of the owners.

The Union Co. at Washington Hill, on the opposite side, is sinking an incline with four men, and taking out good pay as they go along.

The American Co., adjoining the Union and the Mountaineer companies, is running gangways, and working at present 12 men, taking out dirt averaging one ounce per man, a day.

TULUAME COUNTY.

Southern Democrat, April 11th: The mill on the Grizzly mine has been for some time past, and is now running, but has not cleaned up yet. We hear that the vein looks remarkably well, and that splendid rock is being taken out.

The miners of Sawmill Flat are now getting fairly to work after the severe winter. Wheels and pumps are running without intermission, keeping the deep claims dry. Last week, Goodrich & Co. found a piece of nearly pure gold, there being not more than an ounce of rock in it, which weighed 36 ounces. Their claim is known as the old Dow claim.

There has been quite an excitement created in the lower part of the county by the discovery of some very rich diggings on Big Creek, about two miles from Ballard's. They are said to pay \$25 to the pan.

The deep claims on Brown's Flat escaped the floods of winter remarkably well. Only one got filled with gravel. All the others were filled with water, but have been pumped out some time ago, and the miners are busy making up for lost time.

DACOTAH.

A correspondent of the Virginia Tresspass of March 30th, speaking of the extent of the Sweetwater mines says: The mines hereabouts are not confined to the eastern slope of the Rocky Mountains, but extend as far west as Green River. Pacific district is bounded on the north by the summit of the Wind River Mountains, on the east by the summit proper of the Rocky Mountains, on the south by the old emigrant road, on the west by Green River and Granite Creek, and contains an area of nearly 500 miles. It includes Big and Little Sandys, the Upper Sweetwater (that is, the headwaters of that stream), Granite Creek, the lake north of the head of that stream, and the eastern bank of Green River, as far north as gold has yet been discovered. Indians report gold in the stream some distance above the north line of this district, in the vicinity of Fort Boonville, directly west of Fremont's Peak, and the chances are that as soon as the snow will permit there will be another stampede in that direction.

The Virginia Enterprise of April 8th, says of the Sweetwater mines: They are not formed of any extensive "wash" of either ancient or modern lakes or rivers, as in California, but by the gradual decomposition and crumbling away of veins of auriferous quartz. This decomposed quartz, with the gold which it originally contained, has been carried for a short distance down along the channels of such ravines as cross the gold-bearing veins and doubtless some rich deposits have been thus formed, but they will very soon be worked out. If the country proves of permanent value as a mining region it will be through its quartz veins.

Santa Fe Gazette, March 14th: The very latest "Golconda" is located about 50 miles west of Cheyenne. A few days since a teamster arrived at the latter place and exhibited a piece of solid gold which he claimed to have picked up at the locality designated. As soon as the specimen was seen a general uproar was started among the railroad hands, extending through every camp, and as the excitement spread, hundreds of men left farms, and shops, and all sorts of business to secure their fortune by picking up lumps of gold similar to the one exhibited by the teamster.

IDAHO.

Owyhee Avalanche, April 4th: Deeds have passed between the parties owning the Ida Elmore and Golden Chariot mines, the boundaries of the respective mines are definitely fixed, and all trouble in the future avoided.

The Celestials at Boonville and vicinity are repairing sluice-boxes, ditches, etc., and if the present weather continue, placer mining will commence in good earnest in a few days.

Contracts are being let for sinking shafts, etc., on the Poorman. The ore is much richer in gold than formerly; the bullion being worth about \$5 per oz. There will be big money taken from the mine this summer.

Boise World, March 25th: Active mining has been resumed for the season all about here, up and along More and Elk creeks, and in a few days, we expect the mining season will be reopened in every camp in

the Basin. Parties owning claims in Deadwood Basin will start thence from here in a few days.

Judge Vance, of Pioneer City, informs us that on Monday next the ditches of Ben. Willson & Co., about that mining region, will be opened for the season, and in about a week more mining will be generally resumed throughout that and the adjoining camps.

A correspondent of the Montana Post of March 28th, writing from the Salmon mines, says: The gold of this basin assays about \$18.75 to the ounce. The claims that are being worked range from \$5 to \$25 per day to the hand. Those that have already been tested have invariably produced these results. The country has been poorly prospected; it may be said to remain as yet in its original condition, there being none of the hills up to this time touched, and all the mining thus far having been confined to the beds of the streams and small gulches. The wages paid laborers last season, which will be paid this year was \$6 per diem in good gold dust. And I am credibly informed by a great number of claim holders whom I know to be in earnest, that a thousand men in addition to present population, can find speedy and profitable employment here during the coming season.

MONTANA.

Post, March 28th: From every indication a few more days of the present weather will set everything in the gulches alive with activity. The small gulches are contributing their floods to the main gulch, and both above and below Virginia, sluices are being set, and everything placed in readiness for the mining season. Gentlemen from the surrounding gulches report the same state of affairs. In Ramshorn gulch, three or four companies are already vigorously at work.

A company has been organized in this place called "The Mill Creek Temperance and Furnace Association." Each member is to ascertain the average amount heretofore expended per week for liquors, and this amount each week is to be put into a pool for the development and reduction of leads at the creek.

We noticed yesterday at Hussey & Dahler's a 60-oz. brick from Alameda rock, assayed by S. F. Molitor, Helena, and stamped \$228.69 coin. About three-fourths of the value is in gold. It was crushed from four tons of rock in Mitchell's arastra, and is a yield of about \$75 currency per ton.

The I. X. L. and Sensesdorfer mills cleaned up Monday last bullion to the amount of over \$11,000, coin value. The I. X. L. had 310.19 ozs., valued at \$5,673.88 in gold, or \$7,886.66 in currency. We did not learn the number of ounces returned by the other mill, but the coin value of the bar was a fraction less than that of the former, it being \$5,660.54.

The National Bank received from Phillipsburg, last week, 454 lbs. of silver bullion—the result of the late period of activity of the St. Louis & Montana Co's mill. The mill has shut down again for want of quartz.

Mr. Fred. Cope, who has just returned from a trip through Gallatin Valley and the Crow Creek mines informs us that there are from half to ounce diggings. Work will be generally commenced in the mines in a few days, and from all indications it will be one of, if not the largest, gold producing camp in the Territory this season.

NEVADA.

Humboldt.

Unionville Register, April 4th: The Dnn Glen correspondent writes: The Essex mill, one mile from town, is now completed. It commenced crushing rock to-day from the Essex and Empire mines. This is 10-stamp mill, of 40-horse power, and is prepared for using sage-brush fuel, it being preferred to wood. Six Varney pans are used, and three large separators. It has 10 pulp tanks, with ample accommodations for settling the pulp. The facility for supplying all parts of the mill with water is most complete, and all the machinery of the mill is perfect. The mill has been erected in a thorough workmanlike manner under the supervision of Mr. G. W. Holt, the Supt.

In company with E. J. Elzy, the Supt., I paid a visit to the Monroe mine. I beheld sights there, in the shape of rich looking gold quartz, that would not only delight but astonish the beholder. The main tunnel is 165 ft. in length, and a contract has been let to continue it to 300 ft., where it will intersect the ledge in the main shaft, at 150 ft. from the surface. The ledge there is 2½ ft. in width and of a rich character; free gold can be seen all the way through it. The ledge increases in richness with its depth, and gives every evidence of being one of the richest gold bearing quartz ledges in the State. A drift of 205 ft. has been run

south on the ledge in the main shaft, and the ore found to be of the first quality and superior to any before found. There are about 200 tons of rock lying on the dump, which is expected to pay \$200 to the ton. This rock will be sent to the Essex mill for reduction in a few days.

Seven men are now at work on the mine, but more will be put on in a short time.

The Humboldt River G. & S. M. Co., owners of the Monroe mine, will erect a steam mill in this place as soon as possible, the machinery having been shipped from New York, and a portion of it has already arrived.

Shipped, from Fall's Pioneer mill this week, 900 ozs. of bullion; value, \$1,080.

Esmeralda.

The Pine Grove correspondent of the Virginia Enterprise, writes April 15th, as follows: Our mines, that is the paying ones, never looked better.

The Wilson mine has a very fine body of ore exposed in the upper tunnel—which is being extracted at the rate of from 15 to 20 tons a day. In the lower tunnel a large vein of sulphuret ore rich in free gold was some time ago disclosed, one hundred tons of which yielded within a few cents of \$40 per ton. Mr. Wilson is now having a new tunnel run, a regular short cut from the main tunnel to this body of ore which lies at the end of the tunnel, the course of which is shaped like a fish hook.

Billy Bourne, the Supt. of the Midas mine, is now busily engaged in getting out another run of almost 205 tons from that mine. No work has been performed on the Wheeler mine since the last run of 600 tons, on account of a disagreement of the owners. The Poorman Co. are busily engaged in running a new tunnel; they will strike the sulphuret rock on the ground of the Burlesque, and then follow the wall to the north end of the claim, and there cut their ledge at a depth of 100 ft. from the surface. Messrs. Blasdel and Goodrich have recently been prospecting their segregated interest in the Mountain View claim. They have a large body of low grade ore in the claim, out of which they can extract from 15 to 20 tons daily, that will pay from \$12 to \$20 per ton. Satisfactory arrangements having been made with the Pioneer mill for the reduction of the ore from this mine, work will be immediately commenced thereon. Mr. Whallon is working the Hamilton Co's mine with an excellent show of success.

The El Dorado Co. have recently run a tunnel into their claim, about 200 ft., and contemplate continuing the work 100 or 200 ft. further. Some very fine sulphuret ore, in small veins, has been cut through. The Pioneer mill has been engaged in reducing some of the refuse ore from the Wheeler, which paid nearly \$18 per ton, and will soon commence on a run from the Midas.

Crosman's arastras are running night and day on rock from Toombs & Abraham. From five to eight tons per day are worked. Toombs & Abraham's new mill will be in working order in a couple of weeks, and will be used exclusively on their own ore. The Washington district, about which there was so much stir last summer, has "petered," i. e. the ores have proven so refractory that nearly everybody has left it, and are now recognized as denizens of this place.

Reese River.

Reese River Reveille, April 7th: J. R. Murphy received at the assay office of the Keystone mill, for the week ending the 6th inst., 23,445 ozs. of crude bullion for melting and assaying.

April 8th: Yesterday, six bars of bullion, from the Knickerbocker mill, near Ione, were brought into this city.

Last night the stage brought four bars of bullion from the mill of the Combination Co.

To-day a wagon carried from Elder's lumber yard five Wheeler & Randall's improved millers, each weighing 1,450 lbs., and a retort for the mill of the Twin River Co. at Ophir Cañon.

The Keystone mill at Austin, was destroyed by fire on the 6th inst.

April 9th: Samples of ore from the Hidden Treasure lode in White Pine district, which were brought to this city, and assayed in different offices, ranged from \$675 to \$1,700 and \$2,300 per ton. The lode is undoubtedly the best in the district.

The mill of the Smoky Valley Co. in Geneva Cañon is about ready for crushing. The mill is arranged for crushing the ore wet, and the result of the experiment of treating it without roasting will be looked for with interest. The ore to be reduced was obtained from the company's claim on the great Smoky Valley lode, of which there is said to be a large amount on the dump ready for the mill.

The Belmont stage yesterday brought into the city two bars of bullion from the mill of the Belmont Co.

Belmont Reporter, April 4th: The mill of the Belmont Co. which has been lying idle for a time, is again in motion. It is the intention of this company, as soon as the weather becomes settled, to erect at their mill one of the Stetefeldt furnaces, or a sufficient number of reverberatory furnaces for roasting their ore, at which time the necessary alterations will be made in the batteries to admit of the dry crushing process.

Paxton & Co., during the past month shipped from here 65,065 ozs. of refined bullion, all from the mill of the Combination Co.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late raining news from this district.]

Virginia Enterprise, April 7th: We are informed that 3,600 ounces of crude bullion from the Lady Bryan mine, were yesterday molded into bricks at the Gold Hill assay office. It made, when melted, three large bricks, the value of which is but a trifle short of \$5,800, showing the yield of the ore to be in the neighborhood of \$29 per ton.

The Ophir Co. started up their pump at the new shaft on Saturday morning last. The bore of the pump is 12 inches in diameter, and the whole of the machinery works to perfection. The shaft is now down about 130 feet, and is filled with water to the height of 35 feet. Working at the present rate of speed, the shaft will be drained in about five days, when sinking will be resumed. The new shaft is just in range with the rich deposits found in the Savage, and Hale & Norcross mines.

April 8th: There was shipped from Wells, Fargo & Co's Gold Hill office, on the 5th, 6th and 7th of this month, 39 bars of bullion, weighing 2,572 pounds, and of the assayed value of \$108,571.99.

April 9th: Good ore and an abundance of it, is being taken out from the winze in the lower level of the Crown Point mine.

April 10th: The Yellow Jacket Co. are taking out about 150 tons of ore per day at their north shaft. At the south shaft they are drifting for the ledge in their lower level with one set of men, while another is engaged in sinking the shaft to a still greater depth.

The shaft of the Bullion mine is now the deepest in the State, and the deepest but one on the Pacific coast—being 1,200 feet deep. At this depth the company have commenced drifting for the ledge, which lies to the eastward of the bottom of their shaft, at a distance, it is estimated, of 45 feet. Although their drift is in but a few feet, they are already getting into favorable looking quartz. At this great depth they are much less troubled with water than at points above.

April 11th: The total shipment of bullion from this city and Gold Hill, during the past week, was 7,900 pounds, worth \$218,159.26.

A party of men are at work upon a piece of ground leased from the Chollar-Potosi Co., and are taking out considerable quantities of paying ore. The ore is hoisted through the old Milton shaft.

NEW MEXICO.

Santa Fe Gazette, March 7th: A company called the "San Antonio River, Placer Mining and Ditch Co.," intend to build a ditch, commencing in the vicinity of Plaza Rotta. Said ditch will be from five to eight miles in length, and is intended to furnish water for, and to cover the placer diggings formerly discovered and more recently prospected at and near Plaza Rotta, Arroyo Hondo and along the foothills and flats bordering on the base of what is generally known as the Taos Mountain; a range lying westward of a certain mountain known as the Pueblo Mountain, some six miles from Taos.

The company are now making arrangements for a preliminary survey for said ditch, with the intention to prosecute the work without delay, and carry water sufficient for both placer and hydraulic washings; the full extent of which are not yet known, but have been sufficiently prospected to justify the enterprise.

Some 50 to 70 miners are now upon the ground prospecting and making further discoveries.

OREGON.

Virginia Tresspass, April 11th: Superintendent C. C. Thomas, showed us yesterday a sample of gold in a form we never before had seen it. The specimen was a knot of gold wire, evidently nearly pure, the mass weighing nearly half an ounce. It was from a quartz vein in Oregon, and was presented to Mr. Thomas by a friend just down from among the webfeet.

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.

O. W. N. SMITH, W. B. EWER, A. T. DEWEY.
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Writers should be cautious about addressing correspond-
ence relating to the business or interests of a firm to an
individual member thereof, whose absence at the time might
cause delay.

Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting
Agent, and all subscriptions, or other favors extended to
him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. Ramey is our duly authorized agent for
Sacramento County. Nov. 29, 1867.

Dr. L. G. Yates is our duly authorized traveling
agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling
agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, April 18, 1868.

Notices to Correspondents.

STAR-GAZER.—As you suggest, it is quite
probable that as astrology, in the earlier
ages of science was almost invariably
connected, in the same person, with the
study of alchemy,—or the black art, as its
root indicates,—the adoption of metallic
symbols identical with those applied to
represent the heavenly orbs then known,
and now ascertained to belong to our
solar system, was more immediately
connected with astrology than mythology.
In this surmise it is quite probable that
our correspondent is right. We opine,
however, that the titles pertaining to the
chief deities connected with Grecian
mythological Pantheism, were applied to
our satellite, and the five visible planets
which, like our own sphere, periodically
perform their revolutions around the
grand central orb, the sun, prior even to
the study of alchemy. We do not, there-
fore, think we have been very far wrong
in making the allusion we did, in suggest-
ing a mythological origin to alchemical
metallic symbols.

CELT.—The use of tests for the discovery of
certain substances held in aqueous and
other solutions, was first particularly
dwelt upon by Boyle, who was occasion-
ally fortunate in their contrivance and ap-
plication. He observed the conversion of
certain vegetable blues to red by the
agency of acids, and to green by alkalies,
the cloudiness produced by common salt
in silver solutions, and their discoloration
by liver of sulphur or alkaline sulphide.
Boyle was born January, 1627, at Lismore
Castle, County of Waterford, Ireland,
and, in 1680, was elected President of the
Royal Society, and died on the 30th De-
cember, 1691. The celebrated Dr. Bur-
nett preached his funeral sermon, "in
which," says Evelyn, "he spoke of his
wonderful civility to strangers; the great
good which he did by his experience in
medicine and chemistry; the works, both
pious and useful, which he published;
the exact life he led, and the happy end
he made." Boyle was one of our most
important scientific pioneers.

S. M. Shasta.—What are termed the noble
metals comprise platinum, gold, silver
and mercury, and are so termed and were
originally so denominated, less on ac-
count of their intrinsic value or great
specific gravity, although the former
property, and possibly the latter, has had
some influence in fixing the term which
was originally applied by the alchemists.
The application of the term originally
arose from the circumstance that it was
found that the only oxides of metals that
became reduced to the metallic form by
the simple employment of heat, were the
oxides of the metals named; none others
are so reduced, in consequence of which
the terms "calx" or "caput mortuum"
were employed to denote such. Rivot's
proposed improved furnace is based on
this property.

BLOW-PIPE.—You failed in obtaining a
qualitative analysis, probably because
you used too large a proportion of soda.
Some minerals combine readily with very
small portions of soda, but with difficulty
if more be added, and become absolutely
insoluble if in considerable excess. If
the substance to be assayed is void of any
mineral possessing an affinity for the flux,
soda will be useless, as no combination
will take place, in which case the soda
will become absorbed by the charcoal-
holder if this material is employed for
that office.

Chlorination of Silver Ores.

After several months' careful experiments
on different silver and other argentiferous
ores of a notably rebellious character,
Messrs. Kustel and Hoffmann, of this city,
have succeeded in extracting, separately,
copper, gold and silver, up to a high per-
centage, and in a very economical way;
roasting, however, is indispensable.

The advantages of this new process, or
rather of the new combination and applica-
tion of known and approved methods of
working silver ores consist—

1. In dispensing with the use of quicksil-
ver,—of which, by the ordinary pan pro-
cess, from one to one and one-half pound
for each ton of ore is lost; amounting thus
to from 6,000 to 10,000 pounds a year, in a
mill operating on about twenty tons per
day,—besides the liability to salivation by
accidents in retorting.

2. In dispensing with the power now re-
quired for amalgamation and grinding in pans;
each of which, capable of treating three
tons of ore in twenty-four hours, requires
from five to six horse power, and moreover,
consumes steam for heating the pulp. The
pans are superfluous in the chlorination
process, their place being supplied by
wooden tubs of four to ten tons capacity.
It is well known in Nevada and the mining
Territories, that when roasted ore is amal-
gamated in iron pans, their sides are de-
stroyed by the chlorides in from nine to
twelve months;—an important fact, when
we consider the heavy freight, and the cost
in case the pans have to be replaced by new
ones or by new parts. Another objection
to the use of pans, is the fact that base
metal ore cannot be properly treated in
them,—giving bullion of low grade on ac-
count of the iron by which the amalgam is
overcharged. A similar ore, treated by the
chlorination process, yields from eighty-
five to ninety per cent. of silver, always
above 800 fine.

3. Another great advantage is the facil-
ity with which roasting may be performed.
In all processes which are founded on the
formation of chloride of silver in the ore,
the result depends entirely on the proper
roasting; and the performance of this op-
eration is so much the more difficult, the
more base metals and the less sulphur the
ore contains. Unless, for instance, Patena
had modified the roasting, as he did, he
could not have made use of Percy's and
Hanch's suggestions, to extract the silver
by dissolving its chloride by bysulfate of
soda. But Patena's process is objec-
tionable in this country, for the very reason
of the expensive and tiresome roasting. For
the chlorination treatment, a simple prelim-
inary roasting, with a good finishing heat,
is all that is required to secure a satisfac-
tory result.

One of two lots of the "Rising Star"
silver ore, Owyhee, containing \$298 in sil-
ver, per ton, besides some gold, worked by
the chlorination process, by order of Mr.
Leut and H. Janin, and roasted with four
per cent. of salt, gave, besides gold and cop-
per, 96.9 per cent. of the silver,—the bull-
ion being 856 fine. The other lot, roasted
with one per cent. of salt, yielded 88 per
cent.,—880 fine.

A small lot of concentrated ore, contain-
ing a great deal of zinc blende, from the
Tarshish mine at Monitor, Alpine County,
which was received from Mr. Graff, the Su-
perintendent of the above mine, gave also
88 per cent. of silver; a result, which, con-
sidering the richness of the ore,—\$1,608
in silver per ton, besides a considerable
amount of gold,—is certainly gratifying.

From pan-tailings of different rich spec-
imens from Reese River, worked in San
Francisco, by chlorination without roasting,
93 per cent. was obtained. A description
of the process will be given in our next
issue. Messrs. Kustel and Hoffman filed a
caveat for this improved mode of working
gold and silver ores, some time since, and
have more recently made applications
through this agency, for letters patent.

The Microscope in Geology.

Within the last thirty-five years, the
compound microscope has, we may almost
say, created the science of General Anatomy.
By this term is meant the study of the ele-
ments which serve as the material of which
the various organs of the body are built
up;—in other words, the geology,—as Prof.
Holmes calls it,—of the body. Without
this instrument, such a science would have
been impossible. The most careful dissec-
tion had previously failed to demonstrate,
with any degree of certainty, many points
of minute anatomy which with its aid be-
came clear. The structure of bone was al-
most wholly unknown. The composition of
nerve matter, and the nature of several of
the tissues, were a sealed book. Although
the value of the instrument in the hands of
the naturalist had begun to be recognized,—
since Ehrenberg and others had by its
means demonstrated the existence and struc-
ture of organisms so minute that five hun-
dred millions of them may and do exist in a
single drop of water,—nevertheless its prob-
able use to the anatomist and physiologist,
was doubted. John Bell, a justly cele-
brated authority of the times, sneered at
the idea;—saying that the microscopists
"saw just in proportion to the glasses they
used, or to their skill in the art, now almost
forsaken." Others laughed at the fanciful
notion of "discovering the properties of
tissue in its form." But the tune is now
changed;—Physiology has gained as much
from the use of the microscope, as has An-
atomy; and complex organs, the operation
of which was doubtful while the details of
their structure remained unknown, are no
longer puzzles to the scientist.

We have chosen this manner of introduc-
ing our subject,—"The Microscope in Ge-
ology,"—because 1st, it is comparatively a
novel one;—and 2d, because its introducers
met with sneers like the physiologists who
proposed to "discover the properties of
tissue in its form." "Mountains,"—say
the laughers,—"should not be looked at
through microscopes." It would appear,
from the researches of Mr. Sorby, that the
microscope is destined to prove of as great
value in geology and lithology, as in the
sciences aforesaid. It is believed by those
who are following up the subject, that by
its aid in the minute examination of the
structure of a rock, and the arrangement of
its various components, its origin may be
determined. The bearing of this upon
questions concerning the geological forma-
tion of this or that region, will be seen to
be important.

We have recently read a most interesting
paper upon this subject, by David Forbes,
F. R. S. This gentleman has been engaged
for several years in this direction; and has
a collection of rock and mineral specimens,
prepared for this kind of examination, which
is unsurpassed. It is necessary that the
specimen should be ground down to such
thinness as to transmit light. This is, say,
from the one-hundredth to the one-thou-
sandth of an inch;—according to the trans-
parency of the constituents of the rock.
The grinding is commenced upon an iron
plate, with emery of different degrees of
fineness in succession, and finished upon a
slab of fine-grained marble, with water
alone. This surface is then cemented with
Canada balsam to a bit of plate-glass, which
serves as a handle while the other side is
ground in the same manner as the first.
When finished, the specimen is removed
from the plate-glass, and mounted on a
slide for the microscope.

Most rocks, if arranged according to
their structure, fall naturally into two
classes,—primary and secondary. These
terms are here used without reference to the
chronological order of the rocks. The
primary or eruptive rocks have certain
structural peculiarities which distinguish
them, under the microscope, from all
others,—whatever may be their age, or

wherever they may come from. In such
rocks, the mineral constituents are crystals,
more or less perfect, and disposed at all an-
gles to each other,—showing that the mass
was at one time in a state of fluidity,—
either aqueous or igneous,—and that the
particles had consequently perfect freedom
of motion. In all rocks of this class,
whether lavas, trachytes, syenites, or gran-
ites,—whether hard or soft, compact or in
the form of ashes,—a similar structure is
found. By the examination of a specimen
prepared as above described, those of its
mineral constituents which were formed at
the time of the solidification of the rock,
may be distinguished from such as are
the products of subsequent alteration.
When,—as is the case with translucent, col-
orless minerals, such as quartz, leucite, cal-
cite, etc.,—the appearance is nearly the
same, they may be distinguished by their
different optical characters, with the aid of
polarized light. Some other points are de-
termined by the same means. Even after
changes have been produced in primary
rocks by the action of water and other agen-
cies, they can be distinguished, under the
microscope, by the persistence of the least
decomposable portions,—the softer parts in
the interstices having disappeared.

Among the secondary, or sedimentary
rocks, are included those which are formed
of the immediate products of the breaking-
up of the primary rocks. These being
identical in chemical and mineralogical com-
position with the original rock, are often
undistinguishable from it, except by the
aid of the microscope. This instrument
shows the internal structure of the two to
be totally different; revealing the fact, that
while in the primary rock the crystals are
perfect, in the secondary they are broken
up, and moreover differently arranged. In
the same way, roofing-slate is plainly shown
to owe its cleavage to the lines of weakness
produced by pressure, upon sedimentary
beds, of a force applied perpendicularly
to their plane; that force having caused a
flattening of some of the particles, and a
sliding upon each other, of others. By the
microscope Mr. Sorby has shown not only
that limestones had no original crystalline
structure, but that they are made up of the
ruins of organisms the forms of which can
often be recognized and determined.

In altered or metamorphic rocks, pro-
duced by the induration of sedimentary
beds at the points where they are cut through
by eruptive dykes, the perfectly hard rock,
with conchoidal fracture, is shown by the
microscope to be chemically and mineral-
ogically identical with that of the original
beds,—less the water which those beds con-
tained. The chemical changes which some-
times result from infiltration, are often
demonstrable by the same means. Mr.
Sorby showed that certain beds of iron-
stone were originally shell limestones con-
verted into carbonate of iron by the action
of ferruginous solutions; fragments of the
original shells being distinctly traceable in
all stages of conversion. So of other beds
which have been similarly changed by the
action of magnesian solutions. The mi-
croscopic examination of quartzite and foli-
ated schists, shows them to be of sedimen-
tary origin; the outlines of the original
sand grains, and the signs of ripple-drift
being plainly traceable.

Mr. Sorby's discovery of the fluid cavities
in the quartz of granite, is considered to
prove that the rock solidified under a pres-
sure which caused it to entangle and retain
watery vapor. He found these cavities also
in the quartz of volcanic rocks, and in feld-
spar thrown from the crater of Vesuvius;
and infers thence that both quartz trachytes
and the oldest granite were formed by sim-
ilar agencies,—classing them together as
igneous or eruptive rocks.

The use of the microscope in the direc-
tion thus briefly noticed, is, Mr. Forbes
says, still in its infancy. Except Mr.
Sorby's papers upon the subject, nothing

has been given to the public. It is to be hoped that these investigations will be pursued with as much enthusiasm as those to which we alluded in the commencement of this article; and that it may not be long before our acquaintance with the "anatomy of the earth" shall be as complete as our acquaintance with the "geology of the body."

WOOD HANGINGS.—We have received from our traveling partner, Mr. Dewey, several samples of wood hangings, a new substitute for paper hangings, which has recently been introduced to the public in New York. This new article of manufacture has already been quite fully noticed in our columns. The samples before us are not thicker than common wall paper, and are taken off as smooth as the finest shaving. They are furnished in rolls, like paper, twenty-four feet long and eighteen inches wide. The prices of common woods are fifty cents per roll; finer woods, like mahogany, bird's-eye maple, etc., seventy-five cents; rosewood, satinwood, etc., at from \$1 to \$2 per roll. It is evident that these wood hangings must greatly exceed in durability and elegance of finish all the old methods of decorating walls and ceilings. We presume that early arrangements will be made to introduce them into this city.

THE STATE GEOLOGICAL SURVEY.—"El Dorado" writes us upon this subject. He pertinently says: "Now the question arises with all who have the future interests of the State at heart,—shall we let the matter so rest? Shall we as a live progressive people allow the acquisition of valuable knowledge to be thus strangled, and the work of years thrown to the winds? Cannot there be a sufficient expression of public opinion to warrant the Governor in pledging the credit of the State to save and put together what has already been done?"

The communication closes thus: "We charge no blame upon Prof. Whitney, but believe him eminently calculated to do the work that was intrusted to him. His only error was the not catering to the wishes of the public, by publishing practical knowledge of it was developed. That object should be mainly kept in view by any future Geological Survey."

NEW STATE ASSAYER.—Louis Falkenau, of the firm of Falkenau & Hanks, Pacific Chemical Works, has been appointed State Assayer by Governor Haight. This gentleman is especially fitted for the position. As regards competency and reliability, perhaps no man in the State could have been selected who would come more nearly up to the mark.

CONTINENTAL Life Insurance Company,
302 Montgomery street, corner of Pine.

NORTH AMERICA Life Insurance Company.

Usual Restrictions on Occupation and Travel

ABOLISHED!

Policies of this Company are guaranteed by the State of New York, which is true of no other Company on this Coast.

The most Responsible and Liberal Company in the World!

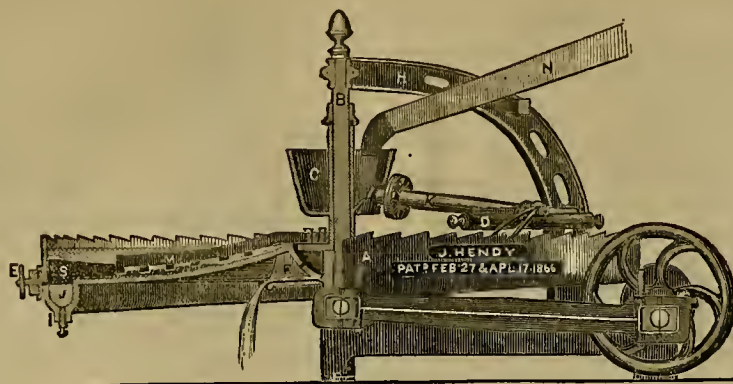
J. A. EATON & CO.,

Managers Pacific Branch, 302 Montgomery st.
20v14m9p SAN FRANCISCO.

CITY IRON WORKS COMPANY.

**CLERC & CO.,
IRON FOUNDERS,**
Steam Engine Builders, and Makers of all kinds of Machinery,
16v16qr No. 23 Fremont street, San Francisco.

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

- The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets. [See Figure 2, marked S.]
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (8 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (8 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO., Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M. & M. CO. (3 Concentrators).....	Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.
JAMES HENTY & CO. (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—*Dear Sir:*—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.

J. HENDY, Esq.—*Dear Sir:*—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.

W. H. RODDA, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—*Dear Sir:*—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes effort for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,

April, 1863

Union Foundry, San Francisco.

Builders' Insurance Company—
OFFICE IN THE BUILDING OF THE
CALIFORNIA SAVINGS BANK, California
street, one door from Sansome street.
FIRE AND MARINE INSURANCE. 16v14m9qr

KNICKERBOCKER Life Insurance Company,

OF NEW YORK.

Assets, - - over \$3,000,000.

Number of Policies Issued in 1867, 10,300.

Amount Insured, - - \$31,375,071 00.

POLICIES ISSUED AT ONCE,

On receipt of Application at the San Francisco Branch Office, without referring to the Home Office at New York.

Policies Paid in Gold Coin or Greenbacks,
at the option of the person insuring.

[Extract from report of the Home Office, for Dec. 1867.]

"The Company's history for the past fifteen years shows favorably, and it stands today ranks it among first class Societies. It has carried out in good faith every contract made by it, never contesting a Southern claim during the war, while it is well known that many of our largest companies repudiated their Southern risks at the commencement of our National struggle, thereby increasing their assets. This honorable dealing of the Knickerbocker in the past, is a pledge of its future good faith."

Pacific Branch Office, 430 Montgomery Street,
San Francisco.

GEO. T. SHIPLEY, M. D., Manager.

Agents wanted through city and State, and Pacific Coast. 6v16-3m9p

PACIFIC Rolling Mill and Forge Co., SAN FRANCISCO, CAL.

Established for the Manufacture of

RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames.

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HAMMERED IRON

Of every description and size.

Orders addressed to PACIFIC ROLLING MILL and FORGE CO., Post Office, San Francisco, Cal., will receive prompt attention.

The highest price paid for Scrap Iron. 9v16-3m9p

A Book for Every Miner and Scientific Man.

JUST PUBLISHED,

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold Bearing Sulphurets, Arsenurets, and Gold and Silver Ores generally.

Price, - - - \$7.50

A liberal discount to the Trade. For sale by the Booksellers

Sent to any part of the United States, postage paid,
on receipt of the price. Address,

DEWEY & CO., Publishers,

Office of the Mining and Scientific Press, 605 Clay street,
16v14f SAN FRANCISCO.

DR. FONDA'S
San Francisco Eye Infirmary.

Permanently established for the treatment of all diseases of the Eye. Dr. F. was for seventeen years principal of the Lafayette (Ind.) Eye Infirmary. F. W. FONDA, M. D., Surgeon in Charge. Office, 402 Montgomery street, opposite Wells, Fargo & Co's. 4v16-13p

Notice.

MR. RUSSELL, WHO CALLED ON US IN MAY, 1867, in reference to an analysis, will hear something to his advantage, by addressing FALKENAU & HANKS, 12v16 619 Montgomery st., P. O. Box 1180, San Francisco

To the Mining Public.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST twenty years as Superintendent for various Companies, working mines of Gold, Copper, and Arseniferous Glens, offers his services to examine and report upon mines and mineral property. Reports accompanied by Plans, Sections and other Drawings. Also would be willing to take the management of any legitimate mining enterprise. If necessary, satisfactory reference given. Address, 14v16f H. H. SHELDON, Copperopolis, Cal.

Smelter Wanted.

A WORKING MAN, CAPABLE OF TAKING CHARGE of one of the shifts in running a Blast Furnace, for reduction of Lead and Silver Ores. Address this office, 13v16m9p

Machinists and Foundries.

PALMER, KNOX & CO.,

Golden State Iron Works.

Nos. 12, 21, 23 and 25 First Street,
SAN FRANCISCO.

MANUFACTURE ALL KINDS OF

MACHINERY,

TEAM ENGINES AND QUARTZ MILLS

DUNBAR'S IMPROVED

Self-Adjusting Piston Packing.

Requires no springs or screws; is always steam tight;
without excessive friction, and never
gets slack or leaky.

WHEELER & RANDALL'S

NEW GRINDER AND AMALGAMATOR

HEPBURN & PETERSON'S

AMALGAMATOR AND SEPARATOR.

Knox's Amalgamators,

WITH PALMER'S PATENT STEAM CHEST.

Superior for working either GOLD OR SILVER ORES, and
is the only Amalgamator that has stood the test of seven
years' continual working.

Genuine White Iron Stamp Shoes and Dies

Having been engaged for the past ten years in quartz
mining, and being conversant with all the improvements,
either in Mining or Milling, we are prepared to furnish, at
the shortest notice, the most perfect machinery for reduc-
ing ores, or saving either gold or silver.

WILLAMETTE IRON WORKS,

PORTLAND, OREGON.

Steam Engines, Boilers,

SAW AND CRIST MILLS,

MINING MACHINERY, WROUGHT IRON SHUTTER
WORK, AND BLACKSMITHING IN GENERAL.

Corner North-Front and E streets,

18v13-1v One block north of Couch's Wharf.

UNION IRON WORKS,

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WILLIAMS, ROOT & NEILSON,

MANUFACTURERS OF

CROSS' PATENT BOILER FEEDER,

STEAM ENGINES, BOILERS,

And all kinds of Mining Machinery.

Also, Hay and Wine Presses made and repaired
with neatness, durability and dispatch.

Dunbar's Patent Self-Adjusting Steam Piston

PACKING, for new and old cylinders, manufactured
to order.

Front Street, between N and O streets,

14v11 SACRAMENTO CITY

GLOBE

Foundry and Machine Shop,

STOCKTON, CAL.

KEEP, BLAKE & CO.,

MANUFACTURERS OF

Quartz, Saw and Grist Mill Irons, Steam

Engines, Horse Powers,

Mining and Irrigating Pumps, Car Wheels, Derrick Irons,

House Fronts, Iron Fencing, Balcony Railings, etc.,

at San Francisco prices. Orders solicited

18v13-1y and promptly executed.

GEORGE T. PRAOY,

MACHINE WORKS,

Nos 109 and 111 Mission street, between Main and Spear,
SAN FRANCISCO.

STEAM ENGINE, FLOUR AND SAW MILL

And Quartz Machinery, Printing Presses,

MACHINERY OF EVERY DESCRIPTION MADE AND

REPAIRED.

Special attention paid to Repairing. 18v13-1y

SAN FRANCISCO

Foundry and Machine Works,

N. E. Cor. Fremont and Mission streets,
Manufacturers of

Marine and Stationary Engines

Quartz Machinery, Saw, Flour and Sugar Mills, Mining
Pumps, Hoisting Gear, Agricultural Implements, etc.

—ALSO—

Whee, Elder, Cotton and Tobacco Presses
of the latest Improved Patterns.

STEAM ENGINES AND BOILERS,

Of all sizes, constantly on hand; Quartz Mill Shoes and
Dies warranted to be made of the best white iron.Dunbar's Improved Self-Adjusting Piston-
packing, requires no springs or screws; is always steam-
tight; without excessive friction, and never gets slack or
leaky.MACHINERY, OF ALL DESCRIPTIONS
Bought, sold, or exchanged. Bolt Cutting and Castings at
the lowest market rates.

6v11-1y

DEVORE, DINSMORE & CO

LEWIS COFFEY & RISDON,

Steam Boiler & Sheet Iron Works.

THE only exclusively Boiler Making establishment in the
Pacific Coast owned and conducted by Practical Boiler
Makers. All orders for New Work and the repairing of Old
Work, executed as ordered, and warranted as to quality.
Old Stand, corner of Bush and Market streets, opposite
Oriental Hotel, San Francisco.

Miners' Foundry

—AND—

MACHINE WORKS

Nos. 245 to 255 First Street,

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HOWLAND, ANGELL & KING,

PROPRIETORS,

Manufacturers of Machinery for

QUARTZ MILLS.

SAW MILLS.

POWDER MILLS,

FLOUR MILLS.

SUGAR MILLS.

PAPER MILLS

Steam Engines of all Kinds.

Amalgamators of all Kinds.

MINING PUMPS, HOISTING WORKS

OIL WELL TOOLS, ROCK BREAKERS.

—AND—

Machinery and Castings of all kinds, either
of Iron or Brass.Boilers and Sheet Iron Work in all its
Branches.Shoes and Dies of White Iron, manufacture
and imported by us expressly for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.Russia Iron Screens, of any degree of fineness
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.W. H. HOWLAND E. T. KING,
H. B. ANGELL, CYRUS PALMER.

18v14-1r

FULTON

Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco.

3-4y

BAURHYTE, McAFEE & SPIERS,

BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain, circular or spiral
courses. Upright Flue or Tubular Boilers, Locomotive and
and Marine Boilers, and Wrought Iron Tanks of every de-
scription.
Hydraulic Pipe supplied at reasonable rates. In or-
dering, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to
be used.Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in re-
pair with promptness.To Boiler Makers and Machinists in the In-
terior.—The firm is prepared to furnish estimates of
Boilers, supply new heads, drilled and punched, and attend
to the selection and forwarding of Iron for Boilers, Pipes
and other purposes.Plans, Drawings and Specifications.—The firm
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their inventions, giving them the ben-
efit of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their inventions.

18v16-1

J. NEWSHAM, J. BIGWOOD.

SOUTH BEACH IRON WORKS,

Near corner of King and Third streets, San Francisco.

MARINE ENGINES,

AND ALL KINDS OF

MACHINERY FORGING.

All kinds of Ship-smithing and Mill work manufactured
to order. Jobbing of every description promptly attended to.
All work done guaranteed.

18v14-17

CALIFORNIA

TOOL AND FILE FACTORY.

Blacksmith and Machine Shop.

No. 38 Fremont street, between Market and Mission, S. F.

Jobbing and Polishing done at shortest notice.

Special premium awarded at the last State Fair, Sacra-
mento.

4v13-4y J. WEIGHART.

LINCOLN IRON WORKS,

No. 51 Beale st., bet. Market and Mission.

D. & W. FOURNESS, Prop'rs.

STEAM ENGINES,

Flour and Sawmills, and MACHINERY of all descriptions
made and repaired at shortest notice.Particular attention paid to repairing Reynold's Cut-off
5v15-1r

CALIFORNIA BRASS FOUNDRY.

No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF BRASS, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Bells and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.PRICES MODERATE.
J. P. GALLAGHER, J. H. WOOD, V. KINGWELL,
18v13-1yI. H. SMALL,
MACHINE SHOP,

BUILDER OF

Steam Engines, Sawmills, Mining Machinery,
Saw Arbors, Wood Cutting Machinery,
and Wood Planers.
Repairing of all kinds done with promptness and dispatch.
Gears of all kinds cut at short notice, corner of
Market and Beale st. San Francisco 4v13-3m

JAMES MACKEN,

COPPER SMITH.

No. 226 Fremont st., bet. Howard & Folsom.

All kinds of COPPER WORK done to order in the best
manner. Particular attention paid to Steamboat, Sugar
House and Distillery work.

Repairing promptly and neatly attended to.

18v11



DUDGEON'S

PATENT

HYDRAULIC LIFTING JACKS,

—AND—

BOILER PUNCHES.

Eighth street, cor. Minna.

18v16-6m

To Foundrymen and Blacksmiths.

LUMP LEHIGH AND CUMBERLAND COAL, IN ANY
quantity, sacked and shipped to any part of the coun-
try, by
JAS. R. DOYLE, Coal Dealer,
413 and 415 Pacific street,
bet. Sansone and Montgomery,
San Francisco.

24v15-3m

Japanning!

EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS
of Hardware and Carriage Work. Damaged Goods re-
juvenated; Sewing Machines Japanned and Ornamented.
434 Fourth Street, between Bryant and Welch, San Fran-
cisco 5v16-3m

N. A. BALL & CO., Prop'rs.

California Steam Navigation

COMPANY.

Steamer CAPITAL.....CAPT. E. A. POOLE

" CORYSOPOLIS.....CAPT. A. FOSTER.

" YOSEMITE.....CAPT. W. BROMLEY

" CORNELIA.....CAPT. W. BROMLEY

" JULIA.....CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, Chico, and Red Bluff.
Office of the Company, northeast corner of Front and
Jackson streets.B. M. HARTSHORNE,
President.

18v12

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER

Black Diamond, in 1 lb canisters.

do do in 3 lb canisters.

do do in 5 lb kegs.

Hunter's Pride, in 1 lb canisters.

do do in 3 lb canisters.

do do in 5 lb kegs.

Pacific Mills River Shooting, in 1 lb canisters.

do do in 3 lb canisters.

do do in 5 lb kegs.

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LINING FOR SHAFTS.—The following is from a recent lecture at the Royal School of Mines, by Mr. Warrington Smyth: "Al- though the expense of lining shafts with masonry was very great, that was an exped- ient which sometimes had to be resorted to. In certain positions, and under pecu- liar circumstances, timber was subject to dry-rot; and there were instances in which levels had to be timbered twice over in four or five months. Frequently this rapid rot- ting was found to result from unsatisfactory ventilation. Timber, if kept cool, and at the same time moist, would last a long time; cases were known in which it had remained sound for centuries; but bad ventilation changed those conditions, and the air be- came hot and dry, and the timber would go rapidly. Supposing they had a level in which the air was circulating freely through it, with at one point a winze covered with a trap-door, it would be found that while the timber would stand well in the level in the good atmosphere, when the trap-door was lifted the winze would be full of hot, confined air, the wood covered with fungi, and the process of rotting going on, not only upon wood, but even the iron. Thus, in going over a mine, the visitor ought to be excessively cautious whenever he made a sudden plunge, as it were, into hot and confined air, as in such cases the staves of ladders, whether of wood or iron, were apt to be rotten to the core. The various pas- sages and entrances to a mine were so elab- orate and complicated that examples of every kind were to be found; and there were also a great variety of means used for the preservation of timber, some of which were not very consistent with that rigid economy which the mining manager ought always to observe. Thus in salt mines it had been observed that the timber lasted longer than usual, and in consequence it had been proposed to soak timber in a strong brine. Again, it was the practice in many mines instead of removing timber found in a state of decay to replace only a sufficient proportion to secure the opening, leaving the rest to complete the process of rotting, and to fall in the end when they could stand no longer; but it had been found that the removal of decaying matter was of great importance, for rot was, in fact, contagious, and spread with rapidity. In some shafts water was allowed to flow down when the lining was of wood, so as to keep it perpetually moist. Again, another method mentioned as successful was that of soaking the timber in pools of the water pumped up out of the mine into which the timber was going, and, no doubt, when such waters were impregnated with some of the sulphates they might aid in the preser- vation of the timber."

EXACT TIME-KEEPERS.—ALMOST.—The new observatory at Neuchâtel, in Switzer- land, has rendered good service to chro- nometer makers by enabling them to regu- late their watches with more exactness. Prizes are now given to those makers whose watches approach nearest to perfection. A marine chronometer lately tested for two months gave 0.164 of a second as the mean variation from day to day. The improve- ment in common watches during five years will be seen by the following table of mean variations in 24 hours:

In 1852 the mean variation was.....	1.64 sec.
In 1853 the mean variation was.....	1.28 sec.
In 1854 the mean variation was.....	1.27 sec.
In 1855 the mean variation was.....	0.88 sec.
In 1856 the mean variation was.....	0.74 sec.

More than three-quarters of the chronom- eters observed in 1856 gave a mean varia- tion per day of less than half a second.

A ROYAL MUMMY.—Some 18 months since, the skeleton of one of the Pharaohs was deposited in the British Museum. The lid of the coffin containing it was inscribed with the name "Pharaoh Mykerimus," who succeeded the heir of the builder of the great pyramid about twenty centuries before Christ. The monarch whose crum- bling bones and leathery integuments are now exciting the wonder of numerous gaz- ers in London, reigned in Europe before Abraham was born,—and only about two centuries or so after Mizraim, the grandson of old father Noah, and the first of the Pharaohs, had been gathered to his fathers.

FOR ETCHING OR WRITING ON GLASS.—A writer in Dingler's *Polytechnisches Journal* recommends a solution of fluoride of am- monium, which can be used with an ordi- nary quill, and on drying leaves a distinct line.

\$100 A MONTH SALARY WILL BE PAID FOR
the best photograph taken in a new, pleasant per-
manent business. Full particulars free by return mail, of
sample retelling at \$1.50 for \$50 cents. A. D. BOWMAN &
CO., No. 4 Broad Street, New York.
[Clip out and return this notice.] 18v16-3m

PAPER FOR BUILDING PURPOSES.—Panel work and slabs for the interior finish of houses is now made in New York city, of card fiber, the disintegration being effected by the aid of steam. This fiber is mixed with clay, resin, sizing, etc., and molded into slabs and panels, all ready for inside finish work.

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TELEGRAPHING IN AN EMERGENCY.—The Troy *Whig* of March 6th, has the following: The up-train over the Bennington and Rutland Railroad, on Monday ran into a deep snow-bank about three-fourths of a mile north of Shaftsbury. Mr. John M. Hills, telegraph operator of Burlington, happened to be on the train. A piece of wire having been procured, and the telegraph wire cut, Mr. Hills formed a circuit, and communicated to the officers of the road at Rutland their condition, asking that an engine be sent to their assistance,—which was at once dispatched. Mr. Hills received the answer from the Rutland office by placing the ends of the wire on either side of his tongue.

If the type of your evening paper appears indistinct, you will find a remedy in Muller's spectacles, No. 205 Montgomery street.

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Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

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COMPILED BY EDWIN F. BEAN.
Editor and Publisher of the Nevada Daily Gazette.

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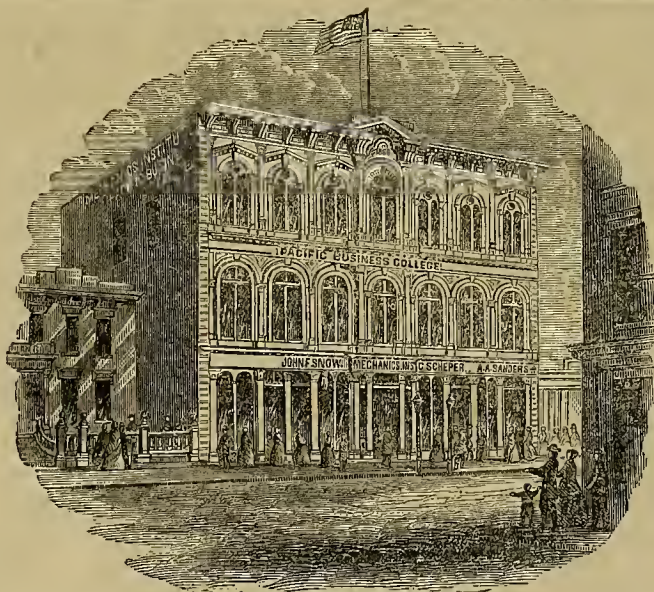
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[10v15-8m]

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ESTABLISHED [MAY, 1860.]

VOLUME SIXTEEN

—OF THE—

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2v15-1qy

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The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—*John Seidl.*

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—*J. C. Felt.*

After a careful and thorough perusal of the same as it was in my power to do, I came to the conclusion that, for conciseness, correctness, and practicality of advice, as well as for completeness and simplicity of style, it was and would be, without a rival. I regard your work as the best of its kind. I know of but few such in any profession who would not be benefited by its careful study.—*Wm. H. Hill.*

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It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text books.—*James Denman.*

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—*Martin Kellogg.*

I recommend it to all those who wish to obtain a book that will give them definite ideas on this subject, and teach them to express their thoughts and feelings in a clear, simple, and forcible manner.—*Caroline L. Atwood.*

I regard the book about to be published as far superior to any work extant upon that subject.—*Wm. S. Bond, A. M.*

I believe the work will be a valuable and much needed addition to our school text-books.—*Herman Perry.*

You have brought the results of a profound analysis, and made them available, in a practical form.—*L. M. Bryant.*

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value in special pleadings and its advocates at the forum.—*John Curry.*

The subjects upon which you treat herebefore need too much neglected in the education of young men in America. Exactly calculated to interest and instruct, it will soon become a necessity in every lawyer's library.—*Charles A. Tuttle.*

Its clearness and comprehensiveness make it easy.—*G. W. Boole.*

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end, he seeks to teach the student not only how to take sentences apart, but how to construct them. His system has the merit of originality. We know of no public work in which he has obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Layres has done the cause of popular education good service.—*S. F. Bulletin.*

This is a San Francisco book by a San Francisco author. It contains 166 pages, is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—*Alta California.*

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Prof. Layres plunges at once "in *in media res*." He seizes a sentence (which is the unit in composition, whether written or spoken), holds it up before you; tears it to pieces before your eyes—or rather, he should say, neatly and skillfully dissects it—displays one by one its several parts; makes you thoroughly acquainted with each, in its entirety; and then shows you how to put them together again. A series of such experiments, increasing in complexity as gradually that you do not feel the difficulty, and the thing is done; you are master of the subject.—*Mining and Scientific Press.*

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Price, \$1.10. Sent by mail, postage paid, without extra charge. Liberal reductions made to the Trade, Teachers and Schools, ordering by wholesale. Orders received by our Travelling Agents.

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Order Bussey's Combination Burglar and Powder-Proof Keyless Lock!

REASONS WHY.

- 1st. It is the best Combination Lock known.
- 2d. It is impossible to pick it.
- 3d. It can be subjected to over half a million changes, and when run by a burglar, he is no nearer entrance than when he began.
- 4th. It has no key to lose.
- 5th. The more it is used the better it is liked.
- 6th. It has no sigas, letters or figures, on its face.
- 7th. It is the simplest to understand.
- 8th. It is impossible to open it without knowing the set.
- 9th. It is least possible to get out of repair, as any one will be convinced on examination.
- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair.

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA,
San Francisco, May 24, 1866.
Recently, two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way meet our fullest approval.

They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks.

We deem the lock entirely burglar proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find no difficulty in either opening or closing it, nor in changing its combinations, which may be made almost innumerable.

As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it.

WM. H. TILLINGHAM, Sub-Manager.

We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several to Vaults and Safes, to entire satisfaction to parties interested.

KITREIDGE & LEAVITT,
Pioneer Iron Works, cor. Fremont and Market sts.,
SAN FRANCISCO, May 6, 1867.

I do hereby certify, that Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safes and Vaults in every other respect as good as any other improved combination lock which I am acquainted with.

JOHN R. SIMS,
Vault Manufacturer, Oregon street.

JACKSON, April 27, 1867.
I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:

- 1st.—Because it is impossible for either burglar or expert to pick it.
- 2d.—The lock being constructed without a key-hole, it cannot be blown to pieces by powder.
- 3d.—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.

R. COSNER,
Attested by J. C. SHIPMAN, County Clerk.

JACKSON, April 27, 1867.
The undersigned, Treasurer of Amador County, do hereby certify, that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's Safe. I have no fear of any bystander gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe every few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.

OTTO WALTHER,
Attested by J. C. SHIPMAN, County Clerk.

CALIFORNIA LOCK ARCADE.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Powder and Burglar-Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the Press several months since. At that time it was adopted by several banking houses in this city, and was now assured that the remarkable claims asserted in favor of the Lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly first fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.—*[Mining and Scientific Press, Sept. 29, 1866.]*

They are the only SAFE LOCK ever invented. Every State and County treasury vault, and every bank and business place should have one.—*Amador Ledger.*

This is a lock in which a series of rotating annular tumblers is employed, and it consists of a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair.—*[Sacramento Union.]*

We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar-Proof Lock to be the most reliable lock constructed.

F. MARKY & C. F. KESSEL,
No. 18, Post street.

REFERENCES:

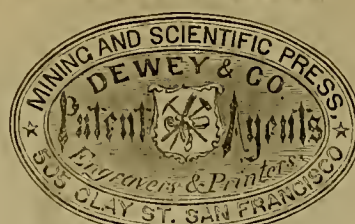
R. COSNER, Sheriff.
O. WALTHER, Treasurer.
W. JENNINGS,
G. H. INGALLS,
L. MC LAINE,
Supervisors.

Any good blacksmith can put this lock on safe doors, boxes or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be.—*[See page 30 in Pacific Coast Directory.]*

A deaf or blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.

19-14ny11815, lam

ESTABLISHED.....May, 1860

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ENLARGEMENT

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Mining Notices.

Black Ledge Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 228 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 228 Clay street, San Francisco, Cal. mar28

Chilpaneca Mining Company—District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-third day of March, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eleventh day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. mar28

OLSKY & Co., Auctioneers and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. nol0

Chalk Mountain Blue Gravel Company.—Location of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twelfth day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar21

Honest Miner Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 228 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, No. 228 Clay street, San Francisco. mar28

Jo. Lane Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 228 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.
Office, 228 Clay street, San Francisco, Cal. mar28

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1868, an assessment of two dollars and fifty cents per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 312 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. GOLDMAN, Secretary.
Office, No. 312 Front street, San Francisco, Cal. mar28

Notice.—The Annual Meeting of the Stockholders of the NEWTON COPPER MINING COMPANY, for the election of Trustees, and the transaction of other important business, will be held at the office of the Company, 305 Front street, San Francisco, on WEDNESDAY, the thirteenth day of May, 1868, at 3 o'clock P. M.

HORACE D. RANLETT, Secretary.
April 18, 1868. apl8

Nuestra Señora de Guadalupe Silver Mining Company, Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1868, an assessment (No. 31) of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. PFEIFFER, at the office, No. 210 Post street, or to the Treasurer, A. H. WILMANN, at his office, No. 637 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco. ap4

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of April, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the sixth (6th) day of May, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. Cal. mar21

San Francisco and Castle Dome Mining Company, Location of Works: Castle Dome County, Arizona Territory.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-sixth day of February, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
S B Stoddard	100	400	\$40 00
S B Stoddard	101	400	40 00
S B Stoddard	102	400	40 00
S B Stoddard	104	25	2 50
S B Stoddard	105	10	1 00
S B Stoddard	106	10	1 00
S B Stoddard	107	10	1 00
S B Stoddard	108	5	50
S B Stoddard	109	5	50
S B Stoddard	110	5	50
S B Stoddard	111	5	50
S B Stoddard	112	5	50
S B Stoddard	113	5	50
S B Stoddard	114	5	50
S B Stoddard	115	5	50
S B Stoddard	116	5	50
S B Stoddard	117	5	50
S B Stoddard	118	5	50
S B Stoddard	119	5	50
S B Stoddard	120	5	50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-sixth day of February, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at their salesroom, No. 310 Montgomery street, San Francisco, Cal., on Tuesday, the twenty-first day of April, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

A. R. SMITH, Secretary.
Office, Room No. 16 Stevenson's Block, Cor. Montgomery and California streets, San Francisco. ap4

Machinery.

**VARNEY'S
PATENT AMALGAMATOR**
These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits. They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
171 San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

Pacific Iron Works, 915 1/2 St.
San Francisco, Aug. 29, 1887.

BLAKE'S QUARTZ BREAKER!**PRICES REDUCED!**

MACHINES OF ALL SIZES FOR SALE

—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
313 1/2 SAN FRANCISCO.

**BLAKE'S PATENT
QUARTZ CRUSHER.****CAUTION!**

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a release of the Patent, bearing date January 9th, 1886

This Patent secures the exclusive right to employ in Stone-Breaking Machines Up-right Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other materials are crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.
BLAKE & TYLER,
141 1/2 Agents for the Pacific Coast.

**NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.****Moore's Patent Friction Hoist.**

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; as goods require no slinging or lashing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.
VULCAN IRON WORKS CO.,
By JOSEPH MOORE, President.
21 1/2 St. **JOSEPH MOORE.**

**HUNGERFORD'S
Improved Concentrators.**

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

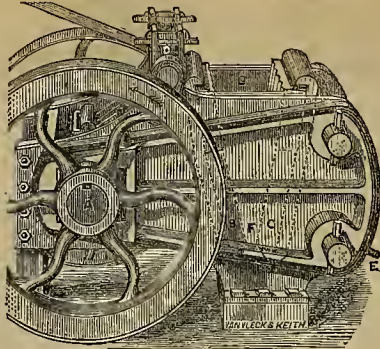
Orders addressed to him at this city, by mail or express, will be promptly attended to.
25 1/2 St. **MORGAN HUNGERFORD.**

A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush St., a few doors above Montgomery, San Francisco. 22 1/2 St.

**Notice to Miners,
Well-Borers and Water Companies.**

M. PRAO IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAO,
81 1/2 St. Stove Store, No. 125 Clay street, below Davis.

Brodie's Patented Improvements**FOR THE TREATMENT OF
Gold and Silver Ores.**

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:
No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600
No. 2—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour.....850
No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Raynolds Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Raynolds Ranch" Mine, in Tuolumne county, California.
RAYNOLDS RANCH, Tuolumne Co., Sept. 28, 1886.
JAMES BRODIE, Esq., San Francisco—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Crushers in constant use, at the Raynolds Ranch Mining Company's Mill, which is entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
Supt. Raynolds Ranch Quartz Mill.
R. P. JOHNSON.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1884. Further particulars will be afforded on application to the subscribers.
For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to local proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below.
A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1886.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found to be the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.
A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22, 1886.

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DUTCH ANCHOR BOLTING CLOTHS.
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Infusoria.

The following, by Dr. P. H. Van der Wyde, is from the *American Journal of Mining*:

The fossil shells of the mighty family of infusoria, which have existed during countless ages, and are heaped up in astounding quantities, have added much more to the mass of materials composing the exterior crust of our globe, than the bones of all mammoths, hippopotami, whales, etc., which ever existed. Startling and incredible as this assertion may appear to some, it is none the less a fact, established beyond all question by the aid of the microscope.

Besides the localities mentioned in my former article, others are almost daily discovered, of which the soil has the same constituents. Even some of our most gigantic mountain ranges, such as the mighty Andes, towering into the air more than 25,000 feet above the level of the sea, their base covering a vast area of land, our massive limestone rocks, the sand that covers our wide-extended deserts between the Rocky Mountains, the soils of our boundless prairies—all these are principally composed of portions of invisible animalcules, so small that one cubic inch, weighing about half an ounce, contains not less than forty thousand millions of flinty shells, each one belonging to an individual living being. The same is the case at the extreme southern portion of our continent.

Darwin writes of Patagonia, that along the coast for hundreds of miles we have a great tertiary formation, including the well known extinct shells of that period, among them the famous gigantic oyster of one foot or more in diameter. The beds composing this formation are covered by others of a peculiar white stone, resembling chalk, but largely composed of infusoria, among which Ehrenberg recognized thirty marine forms. This bed which extends for 500 miles, and probably much further, along the coast, is more than 800 feet in thickness at Port St. Julian. Ehrenberg discovered in rock of the volcanic Ascension Island many silicious shells of fresh-water infusoria, and the same indefatigable investigator found that the immense oceans of sandy deserts in Africa were in great part composed of the shells of such animalcules.

The hazy and injurious atmosphere found near the Cape Verde Islands, and hundreds of miles distant from the coast of Africa, is caused entirely by a brown dust which, upon being examined microscopically by Ehrenberg, was found chiefly to consist of the flinty shells of infusoria, of which 64 were fresh-water species, and two marine. This dust is nothing but the finer portions of sand of the deserts in Africa, driven over the ocean by the periodical winds. The mighty deltas and other deposits of large rivers are also found to be filled with the remains of this vast family of minute organizations. Some of their deposits are at present still in the process of formation; as, for instance, not only the deltas of the Mississippi, Nile, etc., but also the annual valley-deposit of the beneficent Nile, that fertilizes so large a tract of country, consists, so far as its nutritive principles are concerned, of fossil infusoria. Ehrenberg with his keen, scrutinizing research, found these infusoria so diffused in it, that he could not detect the smallest particle of the Nile deposit, that did not contain their remains. He also found on examining the immense amount of mud at the harbor of Wismar, in Germany, that the yearly deposit there, contained a mass of animal remains, amounting in bulk to 23,000 cubic feet, and weighing forty tons. The chalks and flints of the English coast, contain in every cubic inch about one million distinct shells. The Paris basin, 180 miles long and 90 in breadth, abounds in infusoria and other silicious remains; and the towns of Richmond and Petersburg, in Virginia, are built on myriads of skeletons of marine animalcules, contained in a flinty marl twenty feet in thickness, and many miles in extent.

The well known hone used for sharpening razors and tools, and found in Turkey and Missouri, and many paving-stones, all contain and are sometimes entirely composed of, such organic remains.

PROTECTION OF TREES FROM INSECTS.—

From proceedings of the Entomological Society, London, 1866:—To drive away insects from fruit blossoms before they deposit their eggs, let the branches be sprinkled, at the moment the blossoms begin to appear, with a mixture of one part of strong vinegar and nine of water. It may be done with a syringe. The destruction of the fruit is thereby prevented.

WHY QUARTZ MINING OFTEN FAILS.—*Dicker's Mining Record* for Dec. 28th, has an article upon the status of the Australian quartz mines at the present time, a portion of which we quote as being, to some extent, applicable also to California: "If we take the majority of quartz mines which have been in existence any number of years, we find, almost invariably, that success has been delayed from want of either the courage or the means to invest at first, or the inability to resist the temptation afterwards of declaring early dividends. In other words, were all the capital requisite to open up the ground in a thorough way forthcoming first of all, the dividends from quartz mines would not only become larger and give a better return on capital, year by year, but would have a steadiness also they do not now possess. We see no reason to question that quartz mining of the right sort—we mean by that, undertaken with the caution and judgment usually brought into play in ordinary commercial undertakings—will, on the whole, prove an exceedingly profitable investment. The mischief is that we have so few men with capital who can afford to withdraw their money wholly from other pursuits, and invest it, for a sufficient length of time to get a return, in mining. Works are consequently hurried to a conclusion, and before sufficient time or money have been expended to develop the lode, the principal shareholders have grown too impatient to wait any longer, shares are sold for just what they will bring, a winding-up suit supervenes, and the nucleus of a profitable undertaking is for an age perhaps entirely lost sight of. We have in our recollection scores of mines thus mismanaged, from which profitable results have after a lapse of time been obtained. Thousands of pounds are invested in machinery, to keep which employed after it is erected its owners have frequently not sufficient courage to invest as many units. Such a proceeding is about as reasonable as if a shopkeeper were to lay out a large sum of money in a place of business which could be of use to no one else, and, when completed, to find that he had not the courage to stock it."

"THE FROZEN TRUTH" IN ANATOMICAL DRAWING.—Prof. Branne, of the University, Leipzig, has just published a method of making accurate sectional drawings of the cadaver. The *Chemical News* says that he first freezes the subject by exposing it to a temperature many degrees below zero for a time, then with a fine saw he severs it in any desired direction. If proper saws are used, the cuts will be perfectly clean and smooth; over these cuts a stream of water is poured, which instantly freezes, as the whole operation is carried on in a room at low temperature, and the ice forms a transparent coating to the severed surface, which may be copied with the pencil at leisure.

POWDER FOR CLEANING JEWELRY.—The high price of an excellent powder much used by European jewelers in finishing and polishing gold, induced Dr. W. Hoffman to analyze it. He found it consisted of 70 per cent. of oxide of iron and 30 per cent. of chloride of ammonium (sal ammoniac). It is made by subjecting iron to the action of hydrochloric acid. After the hydrogen gas has ceased to escape, a solution of sal ammoniac is added. The precipitate is filtered at a very low temperature to prevent rapid evaporation.

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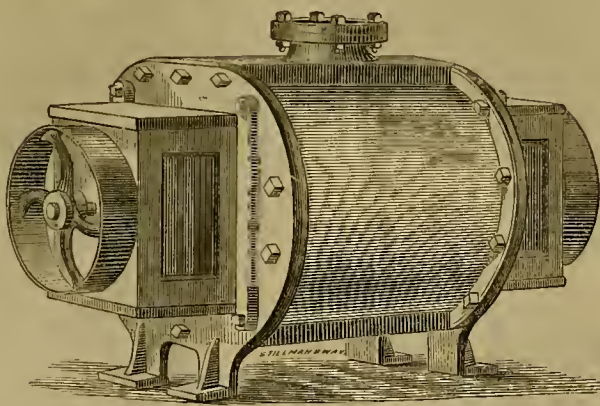
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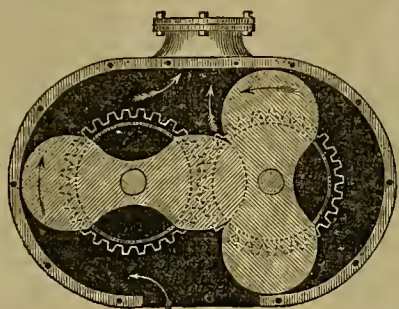
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CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

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SPECIAL ATTENTION GIVEN TO THE ANALYSIS OF
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Will not repair broken limbs nor leaky roofs; but it will
quiet the nervous and brace up the weak. It will give more
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BUSSEY'S LOCK.—From the richest to the poorest, all depend more or less upon the skill of the locksmith to secure to them the fruits of their toil; and, as a consequence, few inventions have been so severely tried as those connected with this branch of mechanism. The art of locksmithing has, of late years, become almost a science; and as the latest result, we are now able to say, with great confidence, of Bussey's California lock—"Eureka;" for we have found that which appears to offer the fullest possible security against the skill and device of thieves and burglars. See advertisement in another column.

SPONTANEOUS COMBUSTION IN THEATERS. A correspondent of the *Pail Mail Gazette*, says that a noted scenic painter gives it as his opinion that many theaters have been burned through spontaneous combustion in the heaps of trash that are allowed to accumulate. The refuse of the painting and property rooms is often swept together, and the varnish, tow, sawdust, bits of oiled rag, etc., together generate heat. Although scene-painting is done with water colors, oils are largely used in the property-room.

Postage.—The postage on the MINING AND SCIENTIFIC PRESS to any portion of the United States is twenty cents per annum, or five cents per quarter, payable in advance at the Post Office delivering the paper. Postage free in the city and county. Foreign postage (with few exceptions) two cents per copy, prepaid. To Bremen and the German States (marked via Bremen and Hamburg line), three cents per copy, prepaid. Single copies to any address in the United States, two cents.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment myself, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. R. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1868. 10v16 3m

MEDICAL AUTHORITIES have announced that not less than one-fifth of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Massachusetts. His "Universal Neuralgia Pill" is pronounced on all hands, to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions twenty per cent. cheaper than ever before, and the very best articles in market. The store is located at 115 Sulter street, Lick House Block. 22v15tf

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

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Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. AND 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and expensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v6-1y 16p

PREMIUMS AWARDED AT ALL THE FAIRS.

We beg leave to call your especial attention to the

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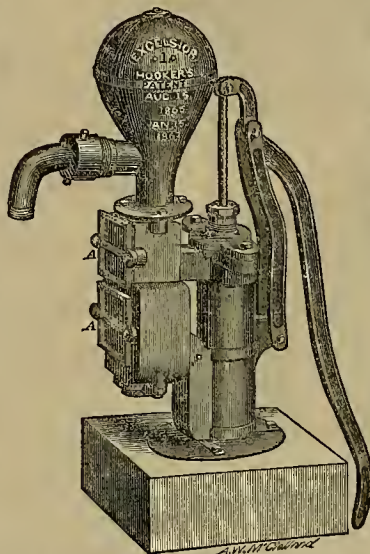
Double-Acting Suction and Force Pump.

Hooker's Patent, Aug. 15, 1865.

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Fig. 3.



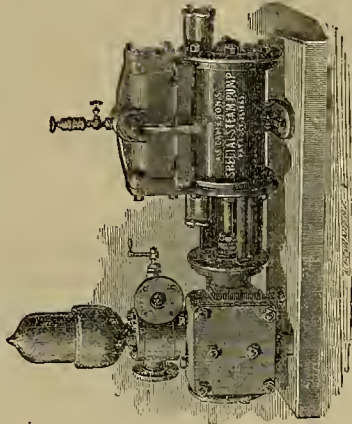
By simply loosening the nut seen at the base of the Air-Chamber, the discharge nozzle may be turned, thus making a right or left-hand Pump.

Fig. 3 represents a Hand Pump, which works very easy, and [with even power. Fig. 4 is a 6-inch Mining Pump, showing adjustable bonnet of the valve chest.

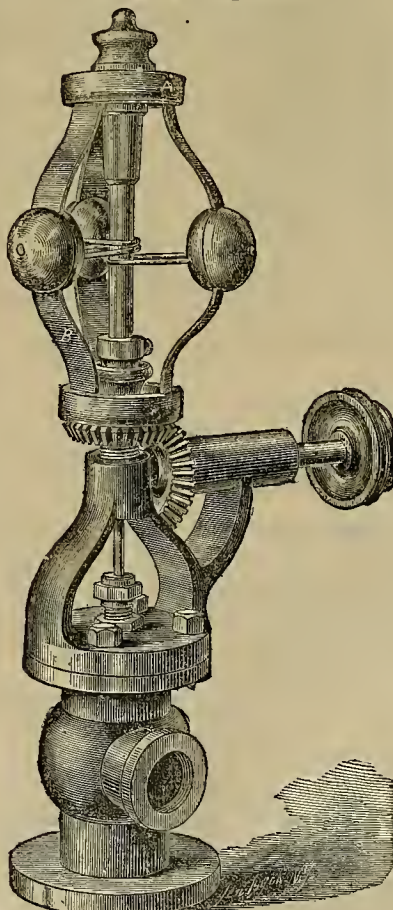
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SAN FRANCISCO, SATURDAY, APRIL 25, 1868.

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Number 17.

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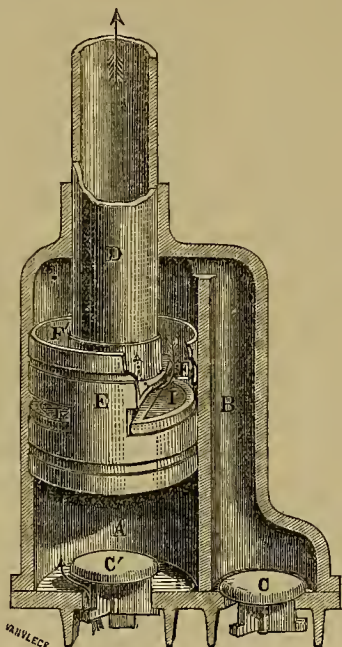
J. ROSS BROWNE'S REPORT.—Fifteen thousand copies of this forth-coming report are to be published for the use of the House of Representatives. The matter was discussed on the 26th ult. Some objection was made by Mr. Cavanaugh, delegate from Montana, on the ground that the report was incorrect in its showing of that Territory; the gold production, for instance, being reported as \$12,000,000, whereas it is in fact \$20,000,000. The delegate from Idaho, Mr. Holbrook, however, was in favor of the printing of a large number of copies,—although the same thing was to some extent true of his own Territory,—inasmuch as the report contained a large amount of valuable information. Mr. Ashley of Nevada spoke of Dr. Blatchley, who furnished Mr. Browne with the items in regard to Montana, as a trustworthy and well-informed man.

SACRED CONCERT.—The Handel and Hayden Society will give a grand sacred concert at Dr. Scudder's church, Mission street, on Tuesday and Thursday evenings. An excellent programme has been prepared, which will include Mendelssohn's Hymns of Praise, entire, together with selections from Handel's Messiah. The following well known soloists have been engaged for the occasion, who will be assisted by a full and efficient chorus, numbering about 100 ladies and gentlemen, all of superior choral talent. It is designed that this shall be one of the fullest and most complete concerts of sacred music ever given in San Francisco. The concert will be under the management of Prof. J. Thorpe, as manager; Prof. G. A. Scott, organist. Tickets, admitting a lady and gentleman, \$1.50; Single tickets, \$1.

CRANMER'S SELF-LOADING GUN.—In our notice of this gun, two weeks since, we neglected to mention that ample provision was made against its heating by the constant immersion of the cylinder in water. The gun may be seen in operation every Saturday at four o'clock P. M., at the shooting gallery, North Beach, near the foot of Powell street. The inventor has spent a great length of time, and much money in bringing this gun to its present degree of perfection, and is now desirous of finding some one who will take an interest in the patent, and in bringing the invention to practical use.

The American Submerged Pump.

In presenting this Pump to the attention of the people of the Pacific Coast, the proprietors truly say that no untried novelty is offered. It has been extensively used in the New England States, thoroughly tried and tested, and is daily increasing in favor. It has been successfully used in Egypt for pumping quick-sand waters; in South America for government docks and irrigating purposes; in Canada and Nova Scotia for mining purposes; and in Cuba for boiling syrups.



As a ship pump, it has received the approval of the French and American Lloyds, and is now receiving the consideration of our own government, by the Life Saving Commission, which, if adopted, will require it to be used on every passenger vessel in the Republic. It has also been used for pumping coal tar, for testing boilers, and for pumping boiling water into boilers. And in each and all these uses, it has sustained every test that it has been put to.

Its principle is that of a double-acting force pump, with a heavy double-acting piston, cast in one piece, and a double-acting iron valve within the same, without the use of leather valve or any packing whatever.

The engraving hereto annexed represents a sectional view of the pump. When the barrel D is raised, as shown, the valve C' is also raised, admitting water, as shown by the arrow; at the same time the puppet valves I, I, have seated themselves on the lower aperture, so that the water from the chamber B may pass as shown by the arrow at F, into the barrel D. On the return stroke the barrel D with the piston E, which are cast in one piece, drops, forcing the water from the chamber A, by the puppet valves I, I, being raised to their seats on the upper aperture, and closing C'; the valve C is at the same time raised, allowing the cham-

ber B to be filled. This peculiar arrangement of the puppet valves I, I, gives a solid head piston each way of the stroke.

In working this pump, the chief portion of the friction due to packing, which the books set down at 33 per cent. of the power applied, is saved;—the piston being so nicely turned and fitted to the chamber that it will operate, to a considerable extent, as an air pump; hence, when submerged in water it has a water packing and water lubrication. The channels of the water coming to the center line of the piston, cause an equal bearing on all parts thereof, and a great saving of power; as may be readily shown by closing up one of the puppet valves, I, I, and taking the water from one side only, as is done on pumps in ordinary use. The same effect is produced when the discharge orifice is placed upon one side, as in ordinary force pumps. The continuous action due to a rotary pump is here more simply and economically obtained by a plunger, maintaining a constant stream without the use of an air chamber.

It is next to an impossibility for this pump to choke; it will clear grain, dirt, gravel, etc., with perfect ease. It has been thoroughly tried in this respect, and the most ample testimonials are given of its efficiency.

This valuable invention is now for the first time offered to the public on this coast. Among its advantages may be enumerated, First, Simplicity: The entire pump is composed of but six parts, all of cast iron, which can be readily put together by a common laborer. Durability: The fact that it is always submerged, and self-lubricated and packed, is sufficient evidence of its advantages in this particular. It is applicable to the coldest climates, as it never freezes, except when the fountain-head becomes frozen, from the fact that it is entirely submerged, and that no water can remain in the pipe when the pump is not in motion. Its advantage in the economy of power has already been sufficiently shown. In point of cheapness and economy, it is claimed that the weight of metal employed to do a given amount of work is considerably less than in that of pumps in ordinary use.

All those who desire to satisfy themselves more fully with regard to the advantages of this pump, can do so by a personal inspection of its operation at the yard of the stable in the Post-office block, where they will find one of the pumps in operation, which will be cheerfully exhibited and explained by the agent, Mr. C. F. Mudge.

THE GIANT POWDER.—We have received a letter from Yuba County, speaking of this article in high terms. On the other hand, we have seen an item in the *Alta* which speaks disparagingly of it; saying that Dr. Fox has not met with the expected success in Nevada County, where he is now experimenting with it; adding, however, that Capt. Oliver reports it as working well in Tuolumne County. It is proving satisfactory in its operation at the quarry in this city, whence the rock for the sea-wall is now being taken.

Co-operation.

The system of coöperation for conducting the various branches of trade and mechanical industry, is gradually growing in favor throughout the whole civilized world. Wherever it has been fairly tried, it has generally worked well, and been productive of good results. It commenced in England under the direction of twenty-eight weavers of Rochdale. Having invested \$5 apiece in a provision store, in a very few years their stock had increased to \$1,000,000 working capital.

In England alone, to say nothing of Germany, France and the United States of America, there are now in existence over 700 such societies,—embracing about 200,000 members.

A beginning of such a system of labor has been made in San Francisco. We have already made allusion to the Coöperative Union Grocery, Sutter street, which is now in admirable working order and daily growing in prosperity. The society recently organized here for the benefit of the working women of this city, has also received due attention.

Long prior to any movements upon the subject on this coast, the readers of the *PRESS* were presented with something of the history of these associations in other places; of the general principles on which they are conducted, and of some of the good effects which might be expected from the same—more particularly as a remedy for some of the evils growing out of the "capital and labor" question. During the past week we have visited two establishments, formed on this plan, for the manufacture of boots and shoes.

The Journeymen's Boot and Shoe Coöperative Union, 413 Broadway, was incorporated Aug. 21st, 1867. They are now manufacturing every class of ladies', misses' and childrens' boots and shoes. Ready sale is found in this city or vicinity for all their goods as fast as they are made up. The United Workmen's Boot and Shoe Manufacturing Company, opened in January last at 416 Battery street, third floor. The stockholders consist solely, as we understand, of first class boot and shoe makers. They employ from twenty to thirty men, chiefly stockholders, who average about \$3.50 per day by piece work—ten per cent. of wages of working members being retained till it amounts to one share. In this way they are constantly making accessions to their stock. The business at present is confined exclusively to men's work—all of first quality; such as pegged kip and calf boots and shoes; screwed do.; Hungarian nailed kip and channel nailed calf;—from 75 to 100 cases being turned out per month.

The goods are represented as made of the best material in the market, and commanding remunerative prices. Roberts, McNish & Co., California street, have thus far purchased them as fast as they could be manufactured.

Other associations of a similar character will receive attention in due time.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Cornish Pumping Engine—An Imperative Necessity for Deep Mining.

EDITORS MINING AND SCIENTIFIC PRESS: My last letter deprecated the folly of, and consequent waste occasioned by, the non-expansive engines supplied to the U. S. Navy; and referred to the statistical examples of the best mechanical engineers, for the comparative advantages derived from expansion of steam, in all engines on land and sea; and that these advantages had been more particularly demonstrated in the Cornish Pumping Engine during the last century.

The Pacific slope is destined to become an extensive mining field. Each year will deepen the developments on mineral veins, and the difficulties of pumping water and hoisting stuff therefrom, will geometrically increase as depth is attained; so that many mines will waste their proceeds, and succumb for want of proper mechanical appliances for deep mining. It is therefore imperatively necessary that you should profit by the experience of others, and discard your non-expansive rotary engines, that are entirely unsuited for pumping water from deep mines, from imperfection of structure and extravagance of fuel; or continuously recurring difficulties and accidents will have to be encountered, and these temporary machines discarded for the more substantial and permanent pumping engine, at a time when, from excessive water and concomitant expense incurred by delay of operations under full staff, the cure of the evil, will cost far more than the prevention.

It is not uncommon in mines from 1,500 to 2,500 feet deep, that pumps of from 15 to 20 inches diameter, varying from eight to ten feet stroke, are required,—where a hindrance of twenty-four hours would be ruinous to the financial balance; so that nothing but the most efficient arrangements can insure continued and successful labor, with economy. The experience of Cornwall in this department, is more valuable than that of all the world beside. I will therefore endeavor to describe the "Cornish Pumping Engine,"—which I deem vastly superior to all others, and hope it may be adopted here as elsewhere, before it is too late; as it is equally well suited for all stages of mining, intervening between the discontinuance of the "horse-whim" harrel, and the deepest developments of man; saving as it does, in every way, from its admirable adaptation to the work,—not only in fuel, and in wear and tear, but also in breakages, hindrances, and consequent loss of mines. This engine embodies many peculiarities;—some of which may be described as follows. We will suppose that a ponderous scale beam is poised on what is termed the "hoh" wall of the engine-house; the inner scale-pan being suspended by the piston rod, constitutes the piston of the cylinder, and the outer scale being the representative of the various pumps vertically suspended to the outer end of the beam by the main (direct connection) rod, that extends from surface to within some fathoms of the bottom of the shaft. It has no crank or fly-wheel, nor is it confined to an exact undeviating length of stroke, but it can be moved at pleasure of the worker, for all desirable lengths; and is in itself continually varying within certain limits, as the load or steam's pressure may increase or decrease, etc.

Engines of this description have varying sizes from 20 to 144 inches in diameter of cylinder, of from nine to twelve feet stroke of piston, and from eight to ten feet in the pumps; the comparative length of inner and outer ends of main lever being governed thereby after the relative ratio of one foot eight inches for one foot of the stroke; a

ten-foot stroke of piston having sixteen feet eight inches for inner length of beam, the outer length being for a nine-foot stroke, fifteen feet beam, which are the lengths preferred, for large and small engines alike; because of the better actions of expansion and practical pumping by quicker and more capacious stroke.

The number of strokes per minute is regulated by the screw governor, of a hydraulic time keeper,—either for an intermittent motion of one stroke in ten minutes, or any required number up to 12 strokes in one minute; being sufficient for the greatest variations that are required in mining; and extremely exact for regular extraction of water. The time of making individual strokes is also varied, and made subservient for the requirements of both the engineer and shaftmen, by elevating the load by *more or less expansion*, in from two to six seconds, and returning the pump-rod with attachments for ensuing strokes, by balance in from four to ten seconds; the latter being sometimes further restricted in dangerously quick descent from pump-valves chipping, by the partial closing of the equilibrium or outlet valve.

As the weight of the pump-rod with fixings, is more than the weight of the water to be lifted, or the work to be performed, the action has been reversed; and the power of this single-acting steam engine is employed only to lifting their weight, which in descending performs the work, on the consecutive plungers or force-pumps, placed at distances of from 150 to 300 feet asunder, and which extend from the surface to the bottom or suction pump, that is invariably used in sinking shafts; but promptly substituted by plunger fixings as soon as possible, to relieve the extra strain from the main rod, lessen friction, and the weight in the balance box.

These force pumps are sized for the quantity of water to be pumped from their respective levels; which is a matter of careful consideration, to prevent wasteful differences that would have to be belifted in their successive supplies to keep the larger pumps full of water.

The suction or "draught" pump is always made larger than those above, to give the shaftmen the advantages of its ventilation, certainty, durability of leathers, and more speedy clearance of the water from the very bottom, previous to drilling or charging sinking holes.

The pumps should never be worked faster than is necessary for their full supply; which is so exactly and beautifully performed by this engine, that a whole watch may be frequently passed without alteration of speed, or excess in the number of strokes.

The engine has four balanced double seated valves, called the governor, steam or expansion, exhaust, and equilibrium; the first is varied by a screw motion, the second, third and fourth by handles, and self-acting leather-faced slides or "plugs" attached to and worked by two parallel and perpendicular rods from the main beam, which plugs are adjusted to the varying requirements of the work to be performed.

Modern engines are all fitted with air pumps and condensers, but they may be worked as puffing engines, for peculiar places.

The boilers are known by the name of Cornish boilers; and composed of two cylinders, secured by one end plate at each end; the fire being lighted in the inner cylinder; the flues range through the inner tube back by both sides, and pass by one channel underneath the boiler, away to the chimney, at a less temperature than 212°; the gases from combustion being deprived of all efficacious heat. They are each provided with stop and safety valves, glass gauges, and gauge cocks, separate dampers, feeds, etc., so that one or more may be worked; thereby enabling the workmen to repair, or cleanse, as often as may be required, without delaying the workings of a deep mine.

The pressure of steam is from thirty to sixty pounds per inch, but generally about forty pounds, and is admitted and released to and from the engine as follows: The engine worker standing before the handles, slips the catch of the exhaustion handle; this valve opens communication to the condenser, and at the same time the motion admits the injection water from the cistern to the condenser, which being allowed about two seconds for entrance and condensation, the catch of the steam is lifted, and the steam handle and valve opens and admits steam, properly regulated by the governor valve's screw, by slow additions; the descending motion of piston rod or beam being closely watched, so that, if necessary, the steam valve may be closed, the exhaustion from beneath suddenly stopped, and the engine's motion arrested by the cushion of retained vapor; the equilibrium handle and valve is next opened

to allow the steam to escape from the top of the piston to the bottom thereof, (in equilibrium) just as fast as is necessary for the ascent of piston and descent of pumps by the balance, which must be now adjusted by throwing the balance rock into or out of the box. The cylinder full of steam is retained until the exhaustion valve opens to repeat the next stroke to support warmth, and prevent inhalation of atmosphere, that would vitiate the perfect vacuum; separate steam is also turned into the piston-rod stuffing-box for similar purposes, and the whole of the surfaces of boilers, steam boxes, pipes and engines are thickly covered with a non-conducting substance. A few strokes is all that is necessary, with skilled drivers, to render the engine self-acting and properly balanced; the correct speed only remains to be ascertained and regulated. Suitable preventive catches or stops are made, of great strength, at each end of the stroke, so as to prevent accidents from loss of load, etc., etc.; and a code of numerical bell signals are used to inform the drivers of the requirements of the shaftmen; thus, any number above ten, means, to work or stop the engine; seven, work faster; six, slower; five, take her up slowly; four, lower slowly; one, stop or hold fast, etc., etc. These are performed by the peculiar adaptability of the engine for the work, as well as all other requisite movements, with great facility, exactness and dispatch, (that can be approached in precision, by no mechanical movement, but that of the steam hammer,) and the engine shows moreover to an experienced eye, on the face of her every movement, the faults of the pitwork, and where the error is located.

These eminent advantages, from the general adaptation,—of direct action, intermittent motion, slow combustion and generation, minimum friction and radiation, with maximum expansion of steam,—cannot be despised with impunity; as they reduce the consumption of fuel from 50 to 200 per cent., as compared with the general engines now placed on this work; and enable the miner to attain thrice the depth, with much less anxiety and danger. I would therefore in conclusion, most emphatically impress the importance of the Cornish arrangements for pumping, both above and below, in the steam engine and pump fixings, as possessing superlative advantages, for efficiency and economy, that can be fully appreciated only by the most experienced practical men;—but which are, notwithstanding, so well recognized in the English mining market, that no prudent man will buy shares in a mine, having an "extravagant rattle-trap rotary" for pumping; but will prefer waiting for the regular pumping engine that must inevitably follow, to properly develop a mine, even where fuel, labor and materials are cheap.

If such arrangements are discarded there, how much more strongly should they be condemned in this expensive country, where greater profits are expected to be realized from mining? To be forewarned has been considered half the battle; so let those interested take warning and be prepared for these contingencies, before it is too late.

J. S. PHILLIPS, M. E.

San Francisco, April 13th, 1868.

THE PACIFIC COD FISHERIES.—Sixteen vessels, aggregating about 2,000 tons, have already left this port, the present season, to engage in cod-fishing on our northwest coast. A large amount of capital is also invested in salmon fishing in that region. The fisheries along the coast of Alaska are probably superior in variety and extent, and in facilities for catching and curing, to those of any other portion of the world; and for that business alone, with its incidental advantage of a nursery for seamen, will, in a few years, be worth all or more than it has cost the National Government. The stupidity, to say nothing of the discreditable nature of the opposition in Congress to the prompt payment for the Alaska purchase, is most astonishing.

RISE OF REAL ESTATE IN NEW YORK. On the 10th of March 246 Central Park lots were sold at auction. The aggregate amount of the sales was \$1,480,000. These lots belonged to the estate of Sarah Falman, deceased. Twenty years ago the "farm" which comprised this property was offered for \$6,500,—and the offer declined.

TO DEODORIZE PETROLEUM.—Dr. R. Wazner says that the disagreeable odor of petroleum can be taken away by treating the oil with a solution of plumbate of soda.

[Written for the Mining and Scientific Press.]

"Expansion of Steam."

EDITORS PRESS:—The article on "Economy of Fuel by the Expansion of Steam," by Mr. J. S. Phillips, in the PRESS of the 11th inst., was apparently written under the impression that the value of expansion, and the merits of Cornish engines were not properly understood in this country.

This is not the case, however, as he would have known if he had been familiar with the history of the expansion controversy among us during the last ten years—since the famous Erie experiments. Mr. Isherwood (the present head of the Bureau of Steam Engineering in the U. S. Navy), proved by those experiments that an engine might be so contrived, that under certain circumstances expansion would be a source of loss rather than gain. Now, Mr. Isherwood not being fitted for an experimentalist, either by the gift of intuition or by previous practical and theoretical training, failed to draw the proper inferences from his own experiments, but jumped to the conclusion that the advantages of expansion were chiefly imaginary, and that engineers from Watt downward had been hugging a delusion. It happened, unfortunately for his country, that from the commencement of the late war until the present time, he has occupied a position that has enabled him to carry out his ideas in most of the machinery constructed for the navy. The experiments referred to by Mr. Phillips were really gotten up to sustain Isherwood's views; and it ought to be remembered that all prominent engineers in the country unanimously dissent from them. The discussion has proved, however, that the full value of expansion cannot be realized without using steam thoroughly dry, jacketed cylinders, high speed of piston and careful adjustment of valve-motion, area of ports, etc., all of which involve increased care and skill both in construction and attendance. It is for this reason that mining engineers on this coast do not generally carry the principle to its utmost economical limit.

Mr. Phillips says no modern engine is now made for H. M. S. Navy, with even a common slide, to carry steam full stroke; neither are they so made for the U. S. Navy, as the extent of Isherwood's heresy consists in maintaining that for ordinary marine engines, the most economical point of cut-off is from ⅓ to ½ of the stroke; his engines usually run at the former point.

On the Cornish engines it may be remarkable that the duty of one hundred and ten millions was not an average, but an exceptional case; the last report from this district in the London *Artisan* gives an average duty of less than two-thirds of this amount. Also in computing this duty the water is not measured, but is reckoned as equal to the displacement of the pump plunger at each stroke, which invariably gives too high a result. Estimated in this way, the duty of the Brooklyn Water Works engine, cutting off at one-third, is superior to the average performance of the Cornish engine.

As a type of expansion engine, it is cumbersome and costly; and although used to some extent in the Eastern States, there are few localities in California where its economy in fuel would outweigh these objections.

The Corliss engine, which varies the point of cut-off to suit the slightest variation in the load, and the Allen engine, are examples of the best American practice. The latter engine, with a cylinder only twelve inches diameter, and a stroke of twenty-four inches, initial pressure of steam 60 pounds, cut off at one-fifth, development 100 indicated horse power, and works up to this extraordinary power on a consumption of fuel fully as low as that of a Cornish engine costing five times as much. Its valves are all operated by a single eccentric, point of cut off self-adjusting to the load, and the indicator diagram shows the lines of admission, expansion and exhaust to be almost absolute perfection!

Mr. Phillips' advice to steamboat proprietors (to try expansion) is very good, but as there is not a steamboat engine running out of San Francisco that does not use steam expansively, nor probably a person in charge who is not aware of its advantages, the experiments on "full stroke versus expansion," will hardly be repeated on this coast.

MACHINIST.

San Francisco, April 14th, 1868.

Mechanical.

PUDDLING.—*Engineering* gives an account of an experiment on some cold-blast Staffordshire iron, in which the first part of the process showed a great decrease in the *silicium*, increase of the carbon contents of the iron; and thus remarks: The question naturally arises, how this increase in the percentage of carbon is possible under the influence of an oxidizing process such as the iron was exposed to. The hypothesis started by Dr. Calvert himself in 1857, that carbon may be taken from the flame or gases in the furnaces, is contrary to all that is now known on this subject, and cannot be maintained; yet the analysis shows such an increase, amounting to about 25 per cent. of the original quantity. There is only one way to explain this result. If we look at the manner in which the silicon disappears from the iron, we find that it becomes transformed into silicic acid, which again combines with a certain quantity of oxide of iron for forming a slag. The oxide of iron may be obtained from the fettling of the furnace, but at the early stages of the operation it is much more likely to be formed by the oxidation of the iron itself. Every pound of silicon requires at least one pound of iron for its conversion into slag; but, as a rule, slags richer in iron are formed in puddling. The removal of 2.5 per cent. of silicon, therefore, corresponds to a simultaneous oxidation of 2.5 to 7.5 per cent. of iron, which will bring the total loss of material during this operation to about 10 per cent.

The conclusion is, that the reason of the greater economy in puddling, on the Continent, as compared with the same in England, is the less amount of silicon in the iron. Most of the pigs used in England are of gray iron, which contains a large proportion of this substance.

PARAFFINE FOR OILING AT A HIGH TEMPERATURE.—The oiling of machines at high temperatures, say about 200 degrees, presents a great difficulty. The lubricants at present in use, are decomposed by the heat, and leave a residue or coating often as thick as varnish, and very sticky,—the adherence of which on the sides of the cylinder hinders the movement of the piston. The problem is to find a substance unalterable at 300 degrees or 400 degrees,—and cheap. The class of paraffines furnishes such, in melene ($C^{30}H^{50}$)—insoluble in water, soluble in the fixed oils, volatile without decomposition, and not boiling under 370 degrees. At the ordinary temperature it is of the consistency of wax. It is also an infallible preservative against oxidation. The above is translated from *Cosmos*, by the *Journal of the Franklin Institute*.

SELF-ADJUSTING PISTON.—Mr. Sweet says he adopted this plan in the construction of this piston:—"I bored the cylinder as perfect as I could, then fitted the piston so tight as to require the strength of two men to move it; then set a heavy tool in the lathe, and carried the point against the face of the piston. I then plunged the piston into a kettle of boiling water, where it was allowed to remain until it had obtained the temperature of the water. I then placed it in the lathe, and started a chip as soon as it could be done; this gave me the size of the piston. I then let it get cool, set the tool forward, and turned the piston off. The bronze rings I make $\frac{1}{4}$ inch for a 12-inch piston. A set will last a year without appreciable wear of the cylinder."

MOVABLE SEAT FOR SLIDE-VALVES.—R. Napier and Mr. Rankine propose to give a slight sliding motion to that part of the valve which contains the induction edge of the cylinder ports, so as alternately to contract and enlarge those ports at each stroke of the engine. This is accomplished by means of a movable seat, with a rod and a third eccentric to give it motion. The effect is the same as would be produced by two different slide-valves.

MALLEABLE IRON.—Mr. St. John Vincent Day, C. E., in an elaborate article for the *Colliery Guardian* says: Since the year 1784, when Cort introduced the process of puddling, there has not been any really great advance made in improving the general results obtainable from the conversion of crude or pig into malleable iron in the puddling furnace, until very recently. The failures which have been encountered have, however, increased our stock of information upon the subject. It is impossible to make good commercial iron from the ordinary ores of this country by the Bessemer process. Mr. Bessemer has himself on several occasions openly confessed that he could not succeed in making good malleable iron by his process, purely on account of the impossibility of removing sulphur, but more particularly phosphorus, in the converter; his early experiments showed distinctly, that whilst the highly oxidizing effect of the blast injected into the converter was most efficient in removing carbon and silicon and some of the lesser impurities, still the phosphorus and sulphur remained untouched; the immediate consequence of which has been, that his process has never come into practice for making iron from the ordinary run of British ores,—by far the larger portion of which contain notable quantities of these two elements, of which phosphorus is the greater enemy, its presence rendering the iron *cold-short*, whilst sulphur has the opposite effect of rendering it *red-short*.

ANOTHER NEW STEEL.—The *Colliery Guardian* speaks of a new steel particularly adapted for cutting tools, recently patented by Mr. J. P. Smith. With it a Bessemer steel piston-rod had been turned from end to end, at the rate of 200 feet per minute; while an ordinary tool was blunted with a few turns of the lathe. The new material is capable of the most delicate degrees of temper. The journal goes on: Mr. Smith has also shown how to produce a bar of metal which shall be common cast iron for any part of its thickness, and coated all over, or at one or more sides, with any required thickness of steel. For instance, if we take the case of a locomotive engine motion-bar, it can be made with as thick or as thin a coating of steel on the wearing side as desired, and yet perfectly united and thoroughly in one piece with the cast iron below. Mr. Smith has also cast projectiles with a very hard steel punching front and a soft rear, his object being to produce shot that will not easily break when fired against armor plates or stone forts, but which, on account of the great hardness of their striking ends, will possess great punching endurance. It is extremely curious and interesting to examine the fractures of such compound castings; the junction of the two metals does not take place gradually, as we might expect, but a perfectly straight, even, and true line marks the boundary of the two conditions of the metal.

COLORING GLASSES FOR STEELMAKERS.—At the Atlas Steel Works, Glasgow, the following is a plan for enabling the observer to determine the point when the combustion of the carbon is completed. A square thin frame contains a combination of colored glasses; for instance, one dark yellow and two blue, or any other colors giving together a very dark neutral tint. Looking at the flame through these glasses, affords the double advantage of preserving the eye from the unpleasant effects of the intense light, and of making all smoke and other disturbing changes invisible. The flame, when thus viewed, looks white so long as the intense brilliancy due to the burning up of the carbon continues, but changes to a deep red at the moment all the latter has been consumed.

ANTI-INCORUSTATION.—To prevent the formation of adhesive sediments in a steam boiler, mix 125 kilograms of crystallized chloride of barium dissolved in fifty of water, with twenty-five kilograms of hydrochloric acid having a specific gravity of 1.20; apply fifteen parts by measure of this acid solution, to every 1,000 parts of water used in the boiler.—*Gas Light Journal*.

Scientific Miscellany.

New Process in Mineral Analysis.

Frank Wigglesworth Clarke, S. B., in a paper published in the March number of the *American Journal of Science*, describes his new method of resolving refractory minerals,—such as emery, chromite, tinstone, rutile, etc. The mineral after being pulverized, is mixed in a platinum crucible, with three parts of fluoride of sodium, and upon the top of the mixture is placed twelve parts of hi-sulphate of potash. The latter should not be mixed with the others. Upon heating, the mixture boils up, and after a time settles into a clear tranquil fusion. The mass obtained is, in the case of some minerals, completely soluble in water. "In other cases, basic salts are formed, which, although, insoluble in water, dissolve readily in hydrochloric acid." Most of these last are, however, made soluble in water, by being treated with strong sulphuric acid in the crucible, after cooling,—and again fused.

Tinstone, treated as first described, gives a white mass, almost entirely soluble in cold water. The same is true of rutile, the yellowish white mass being entirely soluble. Ilmenite, (titaniferous iron,) is completely decomposed, and is mostly dissolved in cold water. It leaves, however, some basic salts which dissolve readily in hydrochloric acid. If treated with sulphuric acid, as above described, it is completely soluble. Chromic iron was completely fused in less than three minutes, over an ordinary Bunsen's gas burner. The cooled mass is light green, partly soluble in water alone, and partly in hydrochloric acid. When treated with the sulphuric acid, a larger proportion is soluble in water alone. Emery is rapidly and easily resolved, and a large proportion is soluble in water; treated with sulphuric acid, it is entirely so. The same is true of hematite. Quartz sand was easily fused, and the resulting white mass almost entirely soluble in water. Pure, finely pulverized cryolite may be substituted for fluoride of sodium, where the introduction of alumina is not objectionable. The bi-sulphate of soda may be used instead of the potassa salt, although the latter is preferable.

In no case did the fusion required a longer heat than five minutes;—and generally three was sufficient. In every case, an ordinary Bunsen's burner was sufficient to produce the heat required. In all cases, the resolution of the mineral was absolutely perfect. All the silica was got rid of at once, and all the bases were converted into sulphates. The last is a great advantage when iron is to be determined volumetrically by means of hypermanganate of potassa solution.

This process has many advantages;—and especially in the examination of ores, slags, and cinders containing iron. A perfectly clear solution is obtained at once without filtering, and it is only necessary to reduce the iron by hydrogen, and then to titrate.

The fluoride of sodium is thus prepared: Cryolite, finely pulverized, is decomposed by boiling with caustic soda solution. Fluoride of sodium is deposited as a jelly-like mass at the bottom of the vessel. This deposit is washed with cold water, until the washings have no longer an alkaline reaction, and afterwards purified by repeated solution and evaporation. Iron vessels, very clean and free from rust, are used.

HOTTINA.—This powder, invented by M. Hotin of Paris, will make linen fire-proof without impairing its whiteness, when mixed with equal quantities of starch and gum. The powder is prepared by adding a little ammonia to an acid solution of phosphate of lime, and filtering with animal carbon, then evaporating until concentrated, when five per cent. of gelatinous silica is added; the whole is then evaporated and the resulting crystals are pulverized.

DECAY OF BUILDING STONE—AND ITS PREVENTION.—John Spiller, F. C. S., who has especially studied this subject, concludes that the decay is due to the corrosive action of sulphurous and sulphuric acids in the atmosphere of large towns, resulting from the combustion of coal fuel. Upon dolomite and the various limestones, these gases are especially destructive. Scrapings taken by him from the decayed portions of the new palace at Westminster, are bitter to the taste, owing to the change of magnesia into epsom salts, or sulphate of magnesia, by the above-named agent. Such portions as are generally covered with soot and dust, and therefore retain moisture longest, show increased liability to corrosion. Mr. Spiller submitted a plan in 1861, for applying an aqueous solution of superphosphate of lime. The Government has not yet reported upon it. In the meantime, another scheme, particularly applicable to dolomite, has been proposed by him. It consists of the employment of baryta with the hardening salt. It decomposes, in the pores of the stone, sulphate of magnesia, which is very soluble, and substitutes sulphate of baryta, which is very insoluble.

GRANITE A MODIFICATION OF STRATIFIED ROCKS.—Prof. D. T. Ansted, F. R. S., gives a paper in the *Civil Engineer* upon this subject, in which he refers to a section taken by him in the island of Corsica, as proof of his position. He says:

"It has been very common among English geological writers to speak of granites as a primitive rock, as the nucleus of the earth, as having been from time to time erupted and injected, and as having played an important part in that general disturbance of all things by which it is supposed the framework of the earth as a vast skeleton has been constructed. Those who are conversant with the observations made in England by Mr. Sorby, in France by M. Dauhree and others, are aware that all true granite has been elaborated with water under great pressure and at a temperature below melting heat—that, in fact, it has neither been ejected nor has it formed a framework. Those who have followed the march of discovery know that there are granites of all ages, and of many kinds, no two of them being alike. Those who have examined granite for themselves, without allowing themselves to be influenced by preconceived notions of its origin, believe that it is merely a modification of certain stratified rocks under peculiar circumstances and conditions."

Prof. Ansted's conclusions from the section aforesaid are: that granite alternates with and passes into stratified rocks, and must itself be a stratified rock in such cases; that its production does not necessarily involve the destruction and obliteration of all the stratified rocks with which it is associated; and that since all examined granites have been derived from aqueous rocks, or formed with water under pressure, the assumption of eruption of granite is not justifiable in the present state of science.

NEW WINDOWS BEST FOR PHOTOGRAPHERS. Photographers have found that they could take better pictures in a room with new windows, than in one long exposed to sunlight. The explanation of this fact is as follows: A glass containing iron becomes yellowish by exposure; and the transmission of the actinic rays is thereby seriously interfered with. Mr. Gaffield says that a pure glass of light green, or bluish-white color, is the best for photographers. These are the most free from the oxides of iron and manganese; the latter of which he believes to be the cause of nearly all the changes he has noticed. Iron and manganese are to be specially avoided in the manufacture of the better kinds of plate and sheet glass.

DETECTION OF SULPHUR IN PETROLEUM. Dr. Vohl suggests the following plan:—Digest the oil for some hours at a gentle heat with a small piece of sodium. Water being added, the aqueous solution is to be tested with nitro-prusside of sodium. The presence of sulphur is shown by the production of the well known purple coloration.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, April 20, 1868.

President in the Chair. Some twenty or more new members were proposed.

ACTION ON THE GEOLOGICAL SURVEY.

Dr. A. B. Stout, from the Committee appointed to prepare an expression of the opinion of the Academy with regard to the abrupt termination of the State Geological Survey, submitted a lengthy report. The terms of the Act creating the Survey were recited, and the fact noticed that the manner in which it had been conducted had received the endorsement of five successive Legislatures, as well as of the eminent scientists at the East, who had recommended the appointment of Prof. Whitney. It was set forth that the objections urged against the Survey, arose either from lack of appreciation or misconception of the scope and purpose of the work. The course of the Survey was defined by statute, and the head thereof had faithfully pursued the course so marked out. The reports already published were in accordance with statute requirements, and were valuable contributions to science. The work of the Survey was briefly recited, and the action of the Legislature in abruptly terminating the same was characterized as unworthy of the State, and calculated to excite regret and reproach among scientific men everywhere. The report concluded with a resolution of regret at the discontinuance of the Survey, and an assurance that the Academy holds in high esteem the character of the late State Geologist, as a scientist, and as a man.

Remarks were made by several of the members endorsing the tenor and spirit of the report, which was finally accepted and approved, and the Committee continued, with the view of their being able to suggest some practical plan for aiding the Governor in saving as much as possible of the results of the Survey, as well as to do what they may be able to accomplish in continuing to completion such portions of the work as are already far advanced in that direction.

Prof. Whitney said he desired to mention a fact not generally known in connection with the late survey. From the inception of that undertaking he had asked every succeeding session of the Legislature for permission to publish the results of the survey in a popular form, or to furnish occasional statements of the most interesting discoveries and results to the newspapers for publication free of expense to the State; but his request had in every instance been denied, legislators appearing to think it best to wait reports in full. It is useless, therefore, to urge now that he wished to monopolize the information and objects gathered. He thought it was as well that the Academy should know that the survey had been stopped, not because too little, but because too much had been accomplished. He believed that the survey never would be finished until a man could be found who was capable of subserving private interests, and at the same time satisfying the public at large; and he did not think such a man could be found.

BUILDING SITE FOR THE ACADEMY.

The Committee on location of site for a future Academy building and grounds reported progress. There is a probability that a piece of land will be reserved for the Academy on the Pueblo tract by the Supervisors. Dr. Beverly Cole had been deputed by the Board to confer with the President of the Academy and the Building Committee on the selection of a suitable site, and by the next semi-monthly meeting the matter will probably be determined.

MISCELLANEOUS.

The receipt of a number of new publications was acknowledged. Mr. Bosqui, on behalf of Dr. Geo. Woods, of the U. S. ship Pensacola, presented to the Academy some curious Indian relics from the Presidio of Mazatlan; a large specimen of crystallized salt from Carmen Island, and several barnacles of uncommon size taken from an iron hulk in the harbor of Callao. Mr. B. also exhibited a specimen of the *Gilbertia Palmella*, or *Gastonia*—an East Indian plant, (analogous to our spikenard) raised by him in his garden in this city.

RESIGNATION OF PRESIDENT WHITNEY.

Prof. Whitney tendered his resignation of the Presidency of the Academy in a short address, in which he announced his intention of leaving the State before the next meeting, for a period of indefinite duration, although he trusted that it would not be forever. He alluded to his seven years' sojourn here as one not altogether unattended with pleasure or profit, although these years had been anxious and laborious ones.

He believed the pleasant reminiscences would outweigh the disagreeable ones. He had faithfully devoted himself to the duties of his office, and had contributed from his own resources for carrying out the survey as abundantly as he was able. He made honorable and feeling mention of his co-laborers in the great work, and hoped the same might soon be taken up again and carried to completion.

In the immediate future his residence would be at Cambridge, Mass., where he would be connected with the department of Mining and Practical Geology, which has already been organized under his supervision. He trusted that the five volumes of the Survey now in a good state of forwardness, would soon be completed—it would be an act of "wilful stupidity" not to allow them to appear, since the amount which would be realized from their sale would more than reimburse the additional expense of their publication, which would hereafter be incurred. The Professor concluded his remarks as follows:

Hoping, then, gentlemen, to have the pleasure of meeting you here at no very distant period, and of finding this institution in a healthy state of progress; returning my thanks for the courtesy with which our work, and I myself, personally, have always been treated by you, I respectfully take my leave of this Chair, and the honorable body in obedience to whose wishes I have occupied it.

After an appropriate expression from the Society, Professor Whitney announced that the election of a President would form part of the business of the next meeting, to be held on the first Monday in May.

PLATE PRESENTATION.—One of those incidents which it is always interesting to record, as indicative of the good feeling which should always be maintained between the employer and employed, occurred at the Miners' Foundry, in this city, on Tuesday afternoon last. One of the partners in that well known firm, Mr. E. T. King, has recently severed his connection with his associates and left for New York on the steamer of Wednesday. Previous to his departure the employes, desirous of giving some evidence of the esteem in which he had been held by them during his long term of eight years' connection with the firm, procured an elegant tea service of silver plate for presentation to him. At about 4 o'clock on the afternoon above mentioned, the works were stopped, and the employes hastily collected in the large pattern-room to the number of some 75 or 100, one of their number having been deputized to devise some plea for securing the presence of Mr. King at the same time and place.

The company having been thus collected, Mr. John Chipchase, in behalf of his fellow workmen, drew aside the folds of the National flag, which was spread out on a table before the company, displaying the elegant present to the view of all, and addressed Mr. King as follows:

MR. KING.—*Dear Sir:*—The employes of the Miners' Foundry, having heard that you were retiring from the firm and taking a journey East, could not let the opportunity pass without making a public manifestation of the high esteem in which you are held by the workmen in your employ. To this end we have freely and voluntarily contributed to the purchase of this silver service as an appropriate present.

Accept, dear sir, this small token of our regard for you, as a foreman and a gentleman, and rest assured that you carry with you our sincere love and regard, with our earnest wishes of long life for you and your estimable family, to enjoy the proud satisfaction of having the confidence and friendship of your fellow men.

Mr. King was, of course, taken entirely by surprise, but returned, in a few words, his warmest thanks to the generous donors for their elegant and costly present. The service was manufactured by Tucker & Co., and consisted of eight pieces, including the salver, each piece bearing the following inscription:—"Presented to Erwin T. King, by the employes of the Miners' Foundry, S. F., Cal., April 21st, 1868."

VISITORS in the city should not forget to call at the Spectacle Emporium, 205 Montgomery street. C. Muller, Optician.

[Written for the Mining and Scientific Press.]

Danford's Generator.

EDITORS PRESS:—It is now several years since I cut from a paper an article on "Danford's Steam Generator," in which I am glad to see by your article of March 7th, I was mistaken; for I have long been convinced that the principle is a good one. The idea itself is not new. More than twenty years ago I read in a book entitled, I think, "Anecdotes of the Steam Engine," an account of an invention, the object of which was, to generate steam, only as it was required for use. The steam was produced by the dropping of water upon heated plates of metal; and I think it was condensed and used again. I was quite a boy at that time, and do not now remember the reason of the non-success of the invention, of which I have always retained a favorable opinion. Probably one difficulty was the well known one in the use of superheated steam, or very hot air, viz:—the burning out of packing and of lubricant.

If this obstacle has been overcome as stated, a valuable advantage has been attained, both as to the use of air and steam; for it is well known that the work obtainable from a heated elastic fluid, is greater as the initial heat of the fluid is higher; and some have thought that air would, for this reason, supersede steam as a motor, as it can be used at much higher temperature with safety. The last remark, however, applies to *saturated* steam; and if it is true, as thought by Danford, that there is a limit to the expansion of a given quantity of water, by heat, this advantage of air over steam no longer exists. I cannot, however, agree with you in your remarks on hot air as a motor. Why is the lightness of air an obstacle to its use?

The difficulty experienced by Ericsson has been ascribed to the fact, that air contained in a vessel cannot be quickly or readily heated by fire applied externally, and was obviated by Roper, though in a rather bungling manner, by burning his fuel *inside* the generator. This would seem to be the right principle, though the idea of an engine having to *stopto eat*, as Roper's does, is of course inadmissible. The fuel must be introduced continuously, and combustion should be *perfect*. Carbonic oxide, hydrogen, hydro-carbon, or a mixture of all, as in Siemen's gas furnace, appear suitable for the purpose, and the idea is being worked up in this form in England. Water also might be introduced, as in Danford's Generator, and thus superheated steam would be added to the hot air and gases, in an economical manner.

I hope some inventor will give us a good air engine, for use in places where water is scarce, as in the Cerro Gordo mines.

I will engage to provide a way to extract the silver from our ores with *very little* water, if some one else will produce the power to crush them without any. Such a power is also required to drive the blast for smelting furnaces. C. H. AARON.

Lone Pine, March 26th, 1868.

FIRM CHANGE.—It will be seen by reference to our advertising columns that the firm name of the Miners' Foundry, in this city, which has been retained without any change in name or person for eight years, has now been changed from "Howland, Angell & King," to "Howland, Angell & Co."—Mr. King having sold out his interest to his partners. Mr. K. left for the East on the steamer of Wednesday last. We are pleased to learn that his stay East will be only temporary, and that he prefers to return and make California his future home.

REPEAL OF THE BULLION TAX.—The Superintendent of the Branch Mint in this city has been officially notified that "a recent Act of Congress exempts all bullion from revenue tax, assayed since April 1st, instant." This will be good news for the miners; giving them, of course, one-half of one per cent. more for their dust than they have been heretofore getting. It will be likely, too, to increase the yield of treasure;—at least of the amount which finds its way to the assayers.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

75,248.—**GUN-LOCK.**—John Franklin Crabtree and William Newton Crabtree, Visalia, Cal.

We claim, 1. The pawl-piece B, in combination with the trigger E and the lever F, acted upon by the main-spring G.

2. The spring-catch I, in combination with the lever M, with the inclined oblong slot O, for the purposes described and in a manner substantially as set forth.

75,249.—**DEVICE FOR RAISING AND LOWERING WINDOW SASH.**—John D. Cramer, San Francisco, Cal.

I claim the combination and arrangement of the several parts of my device, namely, the recess A, with the slotted plate B and the plate D, connected to the staff C by the curved piece c, substantially as described.

75,310.—**STEAM-PLow AND CULTIVATOR.**—Philander H. Standish, Martinez, Cal., assignor to himself and Oliver C. Coffin.

I claim 1. A steam-plow, having the rotary knives *i i* operating in a horizontal plane and transversely to the travel of the machine, and the supporting arms *k k*, or their equivalents, together with the vertical shafts *h*, the whole constructed and operating substantially as herein described.

2. The moveable frame U and the arms *a a*, together with the chains V and capstane W for raising and depressing the plows, substantially as herein described.

3. Operating the plows, when moving in a horizontal plane, directly from the engine by the belt b, or an equivalent device, substantially as described.

This invention has already been fully described in our columns.

75,656.—**IMPROVEMENT IN THE MANUFACTURE OF CRUSHED SUGAR.**—C. Spreckles, San Francisco, Cal.

I claim the manufacture of crushed sugar of commerce directly from the centrifugal machine, in the manner substantially as described.

The object of this invention or process is to manufacture crushed sugar directly from the centrifugal machine, as above claimed, without the tedious delay in the method now employed, to wit, that of turning the melted sugar into molds, and allowing it to refine and drain before it can be crushed into the sufficient-sized lumps or pieces of commerce; this process requiring from ten to fourteen days; while, by the improved process, only about *three* days' time is required, and a sugar is furnished of a quality equally as good, and at an expense of at least one cent per pound less.

RECENT INVENTIONS.

PETERSEN'S IMPROVED BLACKSMITH'S HAMMER.—An exchange says that "Mr. Petersen, of Antioch, has perfected a piece of mechanism which is likely to prove of great utility to blacksmiths. It consists of a heavy hammer so hung with levers and springs, and worked with a foot-treadle, that the smith can do any kind of heavy forging without the help of a 'striker.' The machine can be constructed at a cost of \$75 to \$100, and has been perfected after a course of much study and experiment by the inventor." Application for the above machines has been made through the MINING AND SCIENTIFIC PRESS PATENT AGENCY.

MCCOY'S GATE SPRING.—Mr. George McCoy, a resident of Antioch, has invented a gate spring, which, by a simple movement of the band, is quickly operated. The gate can also be easily opened or shut by a person on horseback. A patent has been issued for this invention.

HENDY'S SAWMILL.—Three of Hendy's Improved Circular Sawmills have been ordered from the Union Foundry to go on the line of the Central Pacific Railroad. They will be employed in sawing lumber for use upon that road. Two of these mills have the gang circular saws attached. The latter have perpendicular and horizontal saws running at the same time, and cut the timber into "dimension lumber" at one motion; thereby not only securing regularity in the size of each lumber, but accomplishing the work with the utmost rapidity.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Markleeville *Miner*, March 14th: The parties owning the Merrimac claim have recently incorporated under the laws of New York.

The Herculeum claim on the Hercules lode has been relocated this week by Messrs. John Dardis, C. W. Dake, H. H. Dake, W. H. Seaman and B. Mullan.

The tunnel running for the south extension of the Tarshish is encountering more and more of the real sulphuret ore of that deposit.

April 11th: The rock in the Mt. Bullion tunnel is getting softer, so much so that we understand J. Soper and partner on last night's shift made three feet of tunnel.

The lateral tunnel of M. C. M. Co. struck through a clay wall one day this week, and into an ore-bearing quartz of considerable promise. They are now several feet into this ore, and will have it tested soon for its value.

County Recorder Jones has put a man at work in the tunnel to be run for the Michigan extensions on the three lodes known as the Comet, the Oso and the Indian Chief. The tunnel starts in just above the Hooker cabin, on the Mogul road.

Amador County.

Jackson *Ledger*, April 18th: In the B. B. M. Co.'s mine, some 30 ft. or more have been drifted from the shaft, cutting two stratas of gravel. The highest layer has just been struck, and its width is not yet known. It is divided from the lower or bed-rock layer by a hard strata of "tufa" or "marle." The trustees of this company had a meeting last Wednesday and levied another assessment of \$5 to the share.

Calaveras County.

Chronicle, April 18th: The hoisting works on the Petticoat mine at Railroad Flat were ready to commence operations on Saturday last. The rock taken from the shaft prospects well from the surface down. A large mill will be erected during the coming summer.

The late storm caused considerable damage to the Water Co.'s ditch.

The Golden Gate Co. will immediately erect more extensive machinery on their claim. As soon as practicable the Co. will have in operation machinery for crushing the cement as it is taken out, and also of efficient capability to keep the water under subjection.

A large stream of water, some 30 inches, was struck in the tunnel of Norton & Co., in Old Rich Gulch, on Saturday last. It flowed out from a fissure in the otherwise solid bed-rock. Its volume was so great that although quite a ditch had been dug in the bottom of the tunnel, the boards laid down to walk upon were floated away. Norton & Co. are pushing forward, and expect to reach the lead next week. Their tunnel has been driven 300 ft.

We have been shown some quartz specimens taken from a newly discovered lead on French Hill, which eclipse anything in that line we have seen for a long time. But little work has yet been done on the lead. Some Mexicans were the discoverers.

Bill Lunt found a chunk of pure gold in his claim on Red Hill, Rich Gulch Flat, one day this week, valued at \$85. There have been several large pieces found in the vicinity of this claim.

Homer, Hill & Co. have purchased the engine and machinery of the Mina Rica quartz mill at West Point, and are now engaged moving and erecting it on their claim in China Gulch.

The Whisky Slide correspondent writes: Our mining interests go smoothly and "pavily" along, as usual. During last week, Collins & Co. of Chee Chee Flat, cleaned up the sum of \$1,500, the result of a forty days' run for three men; an average of \$12.50 a day to the hand. Many claims in this neighborhood are paying well, but are subject to the almost nightly visits of sluice robbers, so that the miners scarcely know what they are making, and if they happen to pick up a nugget, or strike an unusually rich place, they say nothing about it, for fear of being robbed.

San Andreas *Register*, April 18th: The prospects for a busy season in this mining district are very flattering. Mr. Irvine's deep placer claim is now a fixed fact, and will furnish a number of miners with remunerative employment while the water lasts this summer.

Mr. Thorn's quartz claim is being worked, and will be steadily and thoroughly worked during the coming summer. Major Gorman and Capt. Thorpe are making all the

necessary preparations for work on their quartz lodes this summer.

The miners in Washington district are commencing work. C. V. McNair is at work getting the arastra of the Washington mining claim in order for crushing; and that Co. will soon be engaged in crushing the exceedingly rich ore from their lode. Mr. William Smith is taking out wonderfully rich quartz, and sending it to be crushed by Wood's arastras, on the San Antonio Creek. Prospecting is beginning in earnest, and all who have claims are placing shafts, drifts, cabins, etc., in order for a good summer's work.

Kern County.

Havilah *Courier*, April 11th: Sageland, the center of the New El Dorado mining district, is one of the liveliest camps in the county.

Mono County.

Gold Hill *News*, April 16th: At the office of Dr. Ellis, in this town, yesterday, we were shown a box full of rich ore from the Arctic mine, Mono County, California, on the headwaters of Walker river, some 70 miles from Carson City. The ore is a very rich character of argenteiferous galena, similar to the ores of the New Truckee District. Some of it will yield 70 per cent. of pure metal, lead predominating, yet assaying very richly in silver. The quantity of ore we saw would yield 60 per cent. of metal. The ledge, so far as developed, is about four feet in width, and from the surface to about 15 ft. in depth, some 40 tons of this same rich character of ore has been extracted. The mine is not being vigorously worked at present, but during the coming season rich and very valuable developments are expected from it.

Nevada County.

Daily Transcript, April 15th: Hydraulic mining in this county is not declining by any means. During the past two years a number of new mines of this character have been opened, and a large amount of prospecting is being done. As a general thing these mines are very extensive, requiring a large quantity of water. There are other claims in which operations have been suspended on account of a small loss, and these may be again worked. There are quite a number of miners in the county who own small claims, which, with low rates for water, can be made to pay wages, and many of these since the reduction in water rates by the South Yuba Canal and Water Co., will now be worked.

April 18th: The hydraulic claims at North Bloomfield are commencing work. Mr. R. C. Black has two sets of claims in operation, and the North Bloomfield Gravel Co. is working in three different places.

Nearly all the companies at Moore's Flat are now engaged in mining. They have abundance of water and a fine prospect of "big pay" for the coming season.

April 22d: Since the strike by the Welsh Co. at Relief Hill, the miners in that locality have been greatly encouraged. The channel struck by this company is supposed to be a continuation of that worked by the Union Co. on account of the similarity of the gold and nature of the deposits. The Eagle, Welsh, Union, What Cheer, and North Star companies, are now washing. The Union Co. cleaned up \$3,400 last week. This is the ground in which the tremendous blast of 450 kegs of powder was discharged last fall. The North Star Co. last week discharged a blast of 200 kegs of powder, which loosened up an immense body of dirt. Besides the operations of these companies, a large amount of prospecting is being done in the vicinity.

The Snap Co., at Eureka, struck a splendid ledge last week. The point where the ledge was tapped was 200 ft. below the surface, and gold could be seen in nearly every piece of rock taken out.

Nearly all the hydraulic mining companies in Little York township are now at work. At You Bet nine companies are washing, with excellent prospects. The cement mines are also yielding good returns. The Brown Bros. have struck richer cement than they have ever had before. From their claim \$3,000 were taken out last week. Neece & West are averaging about \$1,500 per week, and Hydelliff has struck first-rate cement. The Chalk Bluff Gravel Mining Co. is doing well. They have struck a fine bed of gravel, containing coarse gold, and expect to take out a large amount of dust during the season. All through Little York township the miners are prepared for work, and have every prospect for a prosperous season.

Mr. Nichols of Columbia Hill, recently purchased a set of mining claims from Mr. Jones, at Grizzly Hill, for \$17,000.

Mr. Stede, the original locator of the Mohawk ledge, has struck a 4-ft. ledge about a mile from town and east of the Grass Valley road. The ledge has a first rate appear-

ance and the rock looks as though it would pay well.

Gazette, April 15th: The entire gravel range extending from a point near Gregory & Co's sawmill to Quaker Hill, a distance of 14,000 ft., has recently been surveyed and located in claims for mining purposes. Some of the locations made on this strip or range have a width of 2,000 ft. Miners have commenced prospecting at different places by sinking shafts. If good prospects are obtained, it is probable that a ditch will be constructed from the Cascades to the Crystal Spring House, on the Red Dog road, to supply the miners with water.

April 18th: The Portuguese Co. at Kentucky Flat, under the management of Frank Phillip, have again struck a rich deposit of coarse gold in their claims, some pieces weighing as high as \$10.

One of the proprietors of the Rising Star ledge has made a bet of \$100 that the rock of the ledge now being worked at the Cornish mill will yield an average of \$75 to the ton.

The South Yuba ditch at Scotch Flat has been repaired and water turned on. The following companies will resume work this week: Creamer Co., South Yuba Co., Jensen & Co., Houston & Co.; the Bean Co. have completed their tunnel and will commence running next week. The prospects for a large yield are very favorable.

April 22d: The claims about North Bloomfield promise exceedingly well, and the miners at Alpha are expecting a prosperous season.

Grass Valley *National*, April 17th: N. K. Lamson has leased the old Coe mine, and last Saturday started an 8-in. pump which soon relieved it of water.

A few days since, C. P. Bush & Co. struck the ledge, in an old shaft and drifted 35 ft. on the ledge. They took out 17½ tons of rock which they had crushed by the Hitchen Bros., at the Larimer mill. The yield was \$508.62.

April 18th: An interest in the well known and rich gravel claims (the Town Talk) is offered for sale. These claims have never called for an assessment and have paid as high as \$15,000 per week.

Grass Valley *Union*, April 15th: The two-thirds interest in the Union Hill mine, of this place, was sold a few days since for the sum of \$60,000. The purchasers reside in San Francisco.

In the drift now being worked in the Idaho mine, the ledge is four ft. wide, and the rock shows handsomely in free gold.

Placer County.

Dutch Flat *Enquirer*, April 18th: On Saturday last about the same minute two large caves occurred, one in the Waukegan and the other in the Washington claim, both on the west side of town. The cave in the Waukegan smashed down things generally, doing much damage and causing a delay in the active operations of the mine of some days. In the Washington about 50 tons of dirt falling from the banks filled up the sluices, smashed the pipes, pipe-horses and tools, etc., to such an extent as to necessitate a new rig throughout.

We learn that the shaft sunk by the Dutch Flat Co. reached the bedrock on Saturday last without having struck blue gravel, for which they were sinking.

Plumas County.

Quincy *National*, April 11th: The Taylorville correspondent writes:—A miner by the name of Johnson has found a rich quartz ledge near the old Light ranch in Indian Valley. The Crescent mills are not running; want of wood is the reason.

April 18th: Knisely & Co. are pounding away at the quartz with their little four-stamp mill, and, judging from a partial clean-up, made a short time since, their rock is going to pay well.

The Whitney mill is running steadily. The Crescent mill has commenced running again.

Sierra County.

Dowdville *Messenger*, April 18th: A few weeks since, Gus Larrien, while cleaning up at his claim in Slate Castle Canon, came across a piece containing \$148.

The Docile mill has been stopped and will not commence crushing until the claim is more fully opened and rock easier to be got. It paid well to the last.

The bed-rock tunnel of Cox & Co., at Scales Diggings, is progressing finely.

The Port Wine correspondent writes: The Golden Gate has struck good pay, turning out gold at the rate of \$6 to the car load, and the Monte Cristo took out in two weeks \$2,800.

Siskiyou County.

Yreka *Union*, April 11th: A Scott Bar correspondent writes: Ryan & Williams, on Quartz Hill, are taking out the precious stuff by the pound. The Big Flat Co. has its claim in fine working order, and meets with more than ordinary success in work-

ing the old river channel; last week one cut, four by nine ft., paying as high as \$500. Pullen & Co. are hard at work opening a hydraulic claim on Graveyard Hill. China Louis and his gang, on Poor Man's Bar, are busy, and, it is surmised, will take out large quantities as soon as they get on the bed-rock. The Magoffey Brothers have been prospecting for a big thing, about two miles above the lower ferry; but, failing to strike it, gave it up in disgust. Squire Easton has entered upon an extensive mining operation on Mill Creek. The excavation of Malthy & Co.'s new ditch, from the Fourth-of-July Creek to Lydel's Flat, is nearly completed.

It is contemplated to raise a company to prospect, by means of a tunnel or tunnels, the ridge that divides the Yreka Flats, Greenhorn, Cherry, Deadwood, and Indian Creeks, from Humbug Creek.

Tulare County.

Visalia *Delta*, April 15th: John D. Carter, Superintendent of the Philadelphia Co.'s mines, located at White River, in this county, returned last week from a trip to the East on business of the Co. Mr. Carter informs us that he intends to commence operations immediately and prosecute the work with vigor, having made extensive arrangements for that purpose. From what we know of these mines we expect to hear of a large yield pretty soon.

Tuolumne County.

Sonora *Democrat*, April 18th: The Tuolumne Water Co. have decided to take water to Chinese Camp.

Mr. D. J. Hurley recently showed me some very rich quartz from the "Sultan" mine, at Springfield. Mr. Richards showed us a fine "prospect" from his tunnel claim in Table Mountain. He says but little work can be done at present on account of water.

A correspondent writing from Chinese Camp, says: There are excellent and extensive diggings in our vicinity, but owing to the peculiar character of the country we have been unable to have water brought upon them, and carting the dirt has been our only method of working them. These diggings lie in the flats and gulches around Chinese Camp, and are separated from the ditch district, by isolated hills and deep gullies; hence the necessity of pipe through which to carry the water.

About ten days since there was some remarkably rich diggings struck below here, about 10 miles from Ballard's ranch. The fortunate discoverer, Judge King, has spent a great deal of time prospecting for quartz in that vicinity. The pocket (for such it is) is about 100 yards from the bed of the creek, and was found by the dirt being washed away by the rush of water from an overflowing ditch. The earth is about three ft. in depth, the pay dirt being a tough grayish quartz clay, thickly epangled with fine gold, paying from \$15 to \$30 to the pan. It has to be dried and pounded before it can be washed.

Yuba County.

Marysville *Appeal*, April 10th: We are informed that the work will be commenced on the Bateman ledge in due course of time.

April 15th: Articles of incorporation have been filed in the Secretary of State's office in behalf of the Smartsville Consolidated Hydraulic Co., which proposes the conducting of mining on claims or lot of mining ground in the Sucker Flat and Empire mining districts, Rose Bar township.

ARIZONA.

Prescott *Miner*, March 21st: The Eugenie lode in Big Bend district, in some places is over 10 ft. wide, all solid quartz and sulphurets. On the Galena mine, same district, a shaft is down 100 ft., we visited the mine and was lowered down 60 ft. to where a drift has been run upon the ledge a distance of 20 ft., and we were more surprised than ever at beholding a solid, well-defined ledge of quartz and sulphurets six ft. in thickness, with nice, smooth case-walls of talcose slate. The sulphurets in this mine resemble those found in the Sterling lode, and small lots of them, worked in San Francisco, have yielded from \$300 to \$400 to the ton. There are three shafts upon this mine. For richness of its rock, evenness in width of vein, and perpendicularity and beauty of case-walls, the Galena lode beats any other we have seen in a long time. . . . John A. Rush is hard at work on the Dividend mine, assorting and hauling rock to the mill. . . . The placer miners at work in the district were doing very well. Lewis & Thomas have the richest and best placer claims there.

Smith & Berry are sinking a shaft on their lode. The rock is very rich.

The shaft on the Chase lode, Hassayampa district, is now down 75 ft. The vein is six ft. wide, and the rock is very rich. Mr. Curtis showed us some pieces of the rock, the other day, which contain a great deal of gold.

Frank Alters and F. Hammond have been engaged in sluicing decomposed matter out of the Chloride lode. In one day's run they took out \$27.

The Colorado Co. are doing well. Jim Anderson, Tom McWilliams and Chris. Bentle are working a bar on the creek, below Kirkland's arastras. The bar was ground-sluiced by the winter floods, which left about three ft. of dirt on it, that pays, from top to bottom about three cents to the pan.

The England Gulch, near Prescott, continues to pay fair wages.

Two or three water-wheels are now running in Walker's district, and considerable rock is being crushed.

The placer miners are making \$6 and \$8 a day.

Little & Taylor at Lower Lynx Creek, are pipping away.

Some ten or a dozen Mexican miners came into town from the diggings this week, and from the manner in which they flung their gold dust around, we take it they have been doing extremely well.

Manasseh and Griffin, who arrived here from Wickenburg on Thursday evening, state that both mills are grinding away, night and day. The Wickenburg 5-stamp mill was clearing about \$1,000 per week.

Messrs. Graves and Cook are about to erect a desulphurizer in this town, which they think will work sulphurets well.

March 28th: There are about 50 men mining at Weaver. All are doing well.

Some of the soldiers stationed at Camp Whipple, while prospecting in Granite Creek, recently, between Sheldon's old ranch and the post, found a place where they can go and pan out a few dollars. Recently, in one day, a soldier panned out \$60. Some good pieces have been found.

Pieces of gold, weighing from \$3 to \$40, were found in the England Gulch this week.

Same, April 4th: The run and clean up lately made at the Ticonderoga mill, in Big Bug district, on Dividend rock, by Bowers & Rush, gave entire satisfaction.

The Badger lode, in same district, is being worked and yields good rock.

Noyes & Curtis' mill is being set up at the Chase lode, Hassayampa district. The shaft on the lode is now down 100 ft. ledge fully six ft. in width, with between three and four ft. of very rich rock.

Both the Wickenburg and Vulture mills are running with splendid success.

The placer miners in the various districts are doing first rate.

The San Diego correspondent writes to the *Times* of this city concerning the Arizona mines, as follows: The mining news from Arizona is highly favorable. The Vulture is turning out very large dividends to its owners. The Sterling is also being successfully worked by the Reid process. The Bully Bueno and several other ledges, are also paying well, according to last reliable accounts. The E. W. Morse gold and silver mine, down in Lower California, is said to be turning out far better than was ever expected by the most sanguine gold hunters. The ore taken from this mine is said to assay, on the average, \$200 to the ton.

COLORADO.

Central City Register, March 26th: The Clark-Gardner Co. are fixing to obtain fine results from their mines. . . . Mr. Fitzpatrick has started his mill on ore from the Burroughs, in the interest of J. A. Conlee. . . . Mr. A. N. Rogers, having rented the old Kip & Buell mill, is tearing out the old batteries and ereens, and putting in entirely new housings, screens, shoes and dies. When done the concern will be put to work on ore from the Bohtail. . . . The Canandaigua lode is being worked by Moores & Myers. The shaft is still in what is known as surface quartz, and crushed by Ed. Moores in his stamp mill yields \$200 per cord. . . . The Ophir mine turned out 130 ounces of gold last week from second quality ore. . . . The Gaston lode, Russell's Gulch, is being reopened by Messrs. Cushman, Emanuel and others. . . . The Lexington mill is to start up this week under the direction of Mr. Moses Hall. It is for custom business exclusively, has 24 stamps, plenty of water, and quartz promised. . . . James Clark is refitting the La Crosse G. M. Co.'s mill in Nevada, with the intention of grinding custom quartz. This concern will commence work about the first of next week. . . . Peregrine's mill is crushing from the Running lode, and doing well. . . . Reports say the bar mine on Clear Creek are doing very finely.

Same of April 2d: Messrs. Buddee and Chatfield are mining on the Seudeburg lode. They are down 40 ft., and are taking out ore from a two foot crevice, which being crushed at Mansur's mill, Nevada, yields from \$110 to \$160 to the cord. . . . Messrs. Cassler & Remeck are fitting up the New

Bedford mill, and will have it ready to run in a week. They use the Australian float instead of the screen. . . . J. A. Conlee is running 60 stamps. He is now timbering the Kansas. . . . Messrs. Harvey & Frazier have leased numbers 13 and 14 on the Gregory, owned by the Rocky Mountain Co. . . . A man named Hunter has struck a rich pocket on the bed-rock below Idaho, and has been panning out \$3 to the pan. . . . The batteries of the Chicago mill having been worn through, have been torn out and new ones are being put in. The mill is to be thoroughly repaired. It is to be run on custom work. . . . James Miller has been building a new mill above Chase Gulch on North Clear Creek. He will have it ready to run the latter part of next week. . . . Siegel, a Frenchman, is working over the dirt once worked on Chicago Creek, and is, after carrying the dirt 300 ft., taking out an ounce a day. A young man just above Idaho is working alone, and is taking out half an ounce a day. Two nuggets were recently taken out just above Idaho, one of which weighed 17 pwts., and the other 22.

Georgetown Miner, March 26th: More mining is being done on Brown Mountain and that immediate vicinity, at present, than in any other part of this district. . . . Mr. Foster made an assay, last Tuesday, of some stephanite, brittle silver ore, from the Munsell lode, that gave \$13,200 in silver to the ton. . . . J. W. McFarland has struck a four-inch vein of argentiferous galena and sulphuret of silver ore, carrying blue and green carbonates of copper, in the Winnebago lode, situated on Leavenworth Mountain. . . . An assay of a specimen of copper ore from Sugar Loaf district, Boulder county, gave a return of 1,412 lbs. of copper to the ton of ore.

Denver News, March 25th: At the United States Branch Mint this morning were two bars of gold bullion, valued at \$1,221 38 in coin.

The decided activity shown among the miners of Gilpin county is most encouraging, and gives promise of a season of great prosperity. All the old mills which have stood idle for years are again pounding away on the ore which is being taken from lodes which have not been worked since 1863-64.

DACOTAH.

Sweetwater Mines, April 1st: Among the new discoveries recently made, mention is made of the Gloria Mundi ledge, situated in the Kentucky district, and the Atlantic Cable ledge, situated in Shoshone district; both of which are represented as giving surface indications of remarkable richness. They each crop out boldly for a long distance and present well defined wall rocks.

The Helena (Montana) Herald of March 16th, says of the Sweetwater mines: The facts are simply, that there are no such mines as "Sweetwater Mines," save in the imagination; and all these grand fictitious projects gotten up at a distance in connection with anything of the sort, prove, so far as we can learn, to be nothing less than downright swindles, or the most audacious attempt to entrap the pilgrim army of this season into a snare, from which they cannot extricate themselves short of the sacrifice of their last dollar and their outfits. Even though the Pacific railway should, on its nearing the main range, start a lively burg at or near South Pass, that will be a year hence, and we predict for every thousand persons who rush to those dens of robbery, dissipation and crime, there will be 999 go away beggars where one of them makes a stake.

But again, and finally, we say that so far as the "Sweetwater Mines" are concerned, we denounce them, upon all the evidence before us, (although willing, as we ever have been, to give every region and camp its real dues,) as a second Salmon River sell, only worse, if such a thing could be. That there will be found, eventually, in the Sweetwater and South Pass country along the main range, valuable mineral fields, we have no doubt whatever. In fact, it is almost certain that such will be the case; but that there is at this time any such place as "South Pass City," or any such mines as "Sweetwater Mines" that should induce men to rush blindly there with hopes of gain, we declare to be false.

IDAHO.

Lewiston Journal, March 21st: There will be six arastras to work at Florence this spring.

A correspondent writes from Warren's Camp as follows concerning the Hic Jacet mill: "We opened the battery to-day and took out 140 ozs. of amalgam; we did not clean up, as we have 20 tons more of the same ore to reduce. This is gold from 15 tons of our silver ore; the tailings will yield on an average \$200 to the ton in silver. We

are concentrating the sulphurets on blankets, so as to bring them up to about \$5,000 per ton. We have engaged about 200 tons of ore to crush, which they are now hauling to the mill; we are working night and day."

The Williams and Maxwell mill will be ready to start about the 1st of April.

The same paper of March 28th, gives the following from Warren's Camp: Five new quartz lodes have been discovered and recorded—amongst which are the Oasis and the Paymaster, and are estimated to be good ledges. The owners of the Davis lead, at Florence, have visited Warren's to examine the *modus operandi* of the mills there, in view of the purchase of one for their ledge.

The Hic Jacet mill at Warren's is running in good shape—crushed in all 112 tons of ore—the last 12 tons yielded \$86 per ton. The ore was unsorted and from the Scott lode. They are now at work upon the ore from the W. B. Knott, with 20 tons on hand to crush.

Owyhee Avalanche, April 11th: P. H. Clark has sold out his interest in the Pauper mine to J. M. McQuaid for \$3,000, and has purchased a controlling interest, 650 ft., in the Mississippi claim, including the Donovan & Thomas, for \$5,500. The Mississippi is considered a very promising mine.

The Lewiston correspondent of the Portland Oregonian, of April 10th, says concerning the Warrens diggings:

At present the Winfield Scott is the favorite ledge of the camp, having yielded nearly \$200 per ton free gold, as worked by the Pioneer mill; it is also rich in sulphurets of silver. Three companies are now engaged in taking out quartz from this lead.

The W. B. Knott is conveniently located to the Hic Jacet mill, and is about five feet wide, but not well defined. A 30-ft. shaft has been sunk on this ledge and about 100 tons of ore taken out. Very nearly 100 tons of rock have been taken out of the Hic Jacet ledge and worked, the yield of which has been satisfactory.

Messrs. Hanna & Co. have extracted about 75 tons of rock from the Sampson ledge. They have recently had 36 tons of decomposed ore crushed, which was unsorted, and obtained about \$30 per ton. They are satisfied their rock will pay, and so have put on a day and night shift. This company has run a tunnel 150 ft., and are sinking a shaft. The ledge is about 30 in. wide, well defined and rich in sulphurets of silver and free gold.

A shaft is being sunk upon the Washington ledge by the Pioneer Mill Co. They have found the ledge three ft. wide and well defined.

Several new quartz ledges have recently been discovered and recorded, some of which are estimated to be very rich, and parties are continually out prospecting for more. Altogether about 100 ledges have been discovered in Warren's camp.

I learn that rich specimens of cinnabar have recently been found in the sluice boxes of Messrs. Pollok & Co., at Miller's camp, 20 miles from Washington, and that parties intend prospecting for it this spring.

Portland Oregonian, April 14th: Mr. S. M. Gillingham, who spent the last winter at Warren's, and who arrived from there two or three days since, showed us yesterday some beautiful and rich specimens taken from the Winfield Scott, the W. B. Knott, the Hic Jacet and the Sampson ledges of Warren's, and the Davis ledge of Florence. If these specimens represent the average of rock from those ledges, it is not at all surprising that the people up there got excited and have quartz on the brain.

A gentleman who has just returned from a trip through the Shasta and Willow Creek mines, says that owing to the scarcity of water, those mines will yield but little the coming season.

NEVADA.

Esmeralda.

Aurora Union, March 14th: The following is from Pine Grove: At present the Wheeler mine is not being worked, the Co. having just completed a large run. This we presume is only a temporary suspension in order to make arrangements for the spring campaign. Last week the Wilson Co. cleaned up from a run of over 100 tons of sulphuret ore, which yielded \$37 per ton. This Co. commenced this week on what is expected to be a big crushing of surface ore. Workmen are now engaged on the Toombs and Abraham mill.

The Pine Grove correspondent of the Virginia Enterprise of April 19th, says: Last Monday afternoon a vein of fine ore from three to four ft. wide, was struck in the shaft of the Wheeler mine, at a depth of about 10 ft., which will pay at least \$50 per ton, and some of it will go as high as \$300. The vein is well defined and promises a large body of ore. Appearances indicate that there will be two new strikes here within a week or so.

There is some little excitement about town based on the rumor that Wilson is taking out about \$1,000 a day, off of the plates in his mill, which is running night and day from ore in his mine. Another large body of ore has been struck in this mine, which is six ft. in width and of a very high grade.

Billy Bourne has had nearly 100 tons of Midas rock crushed by the Pioneer mill, and has nearly as much more on the dump. The smoke stack of Toombs & Abraham's mill is up and the whole thing is now being inclosed in a frame building.

Enterprise, April 17th: All the mills in Pine Grove are in full operation on paying ore.

Humboldt.

Unionville Register, April 18th: The Pioneer mill commenced crushing rock from the Arizona mine again this week. The mill has been running on tailings for the last three months, the condition of the road being such that no ore could be hauled from the mine. From this time on, the bullion shipment from the mill will be largely increased, as the supply of ore is abundant and the quality excellent. The new mill for this company is going up rapidly, and will be in running order by the first of June. The number of men at work on the mine will soon be largely increased and ore taken out in quantities sufficient to keep both mills running.

Reese River.

Reveille, April 15th: A sale of several mines in Hot Creek district, has recently been made to an Eastern company. The Gazelle and Prometheus ledges are included in the sale.

The mill of the Centenary company will resume operations about the first of May.

In a drift running into the hill from the bottom of the incline of the Buel North Star mine, which is over 500 ft. deep, a large ledge was cut a few days ago.

John Higgins, who recently returned to this city from McCann Creek, Tuscarora district, in the Goose Creek country, does not give a very favorable account of the yield of the placer mines there. After sluicing for a week he found his earnings to be less than a dollar a day, and he concluded that it would not pay to continue the business. But the gold-bearing quartz ledges are still believed to be valuable.

Five bars of bullion from the mill of the Combination Co., were brought to this city by the stage last night.

April 17th: This morning a train of mules arrived at the Manhattan mill in this city, with a load of ore from Hot Creek. It was obtained, we believe, from a new discovery in Rattlesnake Cañon, and is fine looking ore.

The California mill will be opened on "tailings" to-morrow.

Belmont Reporter, April 11th: Gillette & Clarke, at Rattlesnake Cañon, Hot Creek district, are now down only 20 ft. upon the Wyoming, and are producing rock from a vein six feet wide, which assays throughout from \$50 to \$2,900. The new Philadelphia is down 30 ft., and is putting out rock from a heavy ledge which will pay at the rate of \$100 to \$180 per ton. The Wyoma is also getting out good rock. At Morey, which is 15 miles north from Hot Creek, the mines are proving to be good for any amount of ore which will pay \$100 per ton.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia Enterprise, April 15th: The Kentuck Co., Gold Hill, have commenced sinking in their old shaft. They will put it down 400 ft. lower before drifting.

The old St. John's mine, situated north of the Occidental, has already yielded about 2,000 tons of paying ore, which was crushed at the Birdsell mill near Dayton, and during the coming summer will be vigorously worked. It is probably the same lead as that upon which the Occidental mine is located. Several companies are opening mines in the vicinity of the two claims named.

The property of the English Mill and Mining Co., on the Truckee, has changed hands. A new English company are the purchasers.

Gold Hill News, April 13th: Within the last 48 hours the east clay wall of the great Comstock ledge has been cut in both drifts running west from the Imperial-Empire shaft, at the 900 ft. level.

There was shipped from Wells, Fargo & Co.'s Gold Hill office, this morning, 6 bars of bullion, weighing 492 pounds, and of the assayed value of \$13,340 54.

April 14th: There was shipped from Wells, Fargo & Co.'s Gold Hill office, this morning, 16 bars of bullion, weighing 1,155

(Continued on Page 269.)

Mining and Scientific Press.

W. B. EWER,.....SENIOR EDITOR.

C. W. M. SMITH. W. B. EWER. A. T. DEWEY.
DEWEY & CO., Publishers.

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For sale by Carriers and Newsdealers.—

WRITERS should be cautious about addressing correspondence relating to the business or interests of a firm to an individual member thereof, whose absence at the time might cause delay.

Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. Eaney is our duly authorized agent for Sacramento County. Nov. 23, 1867.

Dr. L. G. Yates is our duly authorized travelling agent. July 6, 1867.

Mr. A. B. Butler is a duly authorized travelling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, April 25, 1868.

Notices to Correspondents.

TRELAWNEY, Grass Valley.—To Mayow, a native of Cornwall, and highly talented experimenter, we are indebted for many of our most interesting early experiments calculated to elucidate the properties of air. Mayow was the first who conceived that a close affinity existed between combustion and respiration. Some of his experiments have been shown by subsequent observers to be not only very correct, but also of a highly refined character. He first burned a candle under a bell-glass, and found the air so deteriorated as to be unfit for the continuance of combustion. He then confined a mouse in a similar portion of air, where it soon manifested the necessity for a renewed supply of oxygen. He afterwards placed a mouse and a candle under the same bell-glass, on which he found that the mouse could only survive *half* the time that it could if placed alone under the bell-glass. He then reversed the experiment, and endeavored to consume combustible matters that had been deteriorated by breathing, and found that in such circumstances combustible matters would not burn. Examining the residuary air standing over water after combustion, he found that it was lighter than the atmosphere and extinguished flame; thus indicating the presence of what we now denominate azote, or nitrogen. Mayow was born 1645, and died in London, 1679. His latter days, like those of many true geniuses, were passed in comparative obscurity.

DAIRYMAN, Petaluma.—The reason why sweet cream requires less churning than sweet cream mixed with new milk, arises from the circumstance that with cream alone, the absorption of oxygen which takes place in the course of each agitation, is diffused through a much smaller quantity of liquid compared with the proportion of butter contained therein; the lactic acid formed by this absorbed oxygen is consequently more concentrated, and therefore acts with greater energy on the outer coating of the butter globules. The fluid is also less aqueous; the two circumstances combined causes the butter "to come more quickly." Sweet cream in butter-making is rather a relative than an absolute term, for accegency commences, especially in warm weather, within a few hours after milk has been "set to stand."

CANNABIS, San Joaquin.—If not too stiff, a large breadth of your county is well adapted for the growth of hemp. In Europe, hemp, like flax, is not mowed, but pulled, and that can only be done by hand labor. Whether mowing hemp would depreciate its value when manufactured into a commercial form or not, and if so, how much, we have never had the opportunity of learning. Independent of the pulling, the preparation of the gathered straw before it can be made saleable, requires a large amount of labor and special attention. We are afraid this fact will retard the introduction of its cultivation into California.

IBERIA—Calls our attention to an unintentional omission on our part, in neglecting to describe, amongst other mining educational institutions, the fact that a "School of Mines" was established at Madrid, the capital of Spain; that in 1847 an Academy of Sciences was created, and shortly afterwards a commission was appointed by the Spanish Government to construct a geographical and geological map of the province of Madrid.

Kustel and Hofmann's Process of Chlorination of Ores.

In setting forth, in our last issue, the advantages of Messrs. Kustel & Hofmann's process on silver ores, an error occurred relative to the pan-tailings from Reese River. The specimens in question were worked in a pan without roasting, but the resulting tailings, subsequently subjected to the chlorination process, required to be properly roasted before being chloridized.

The chlorination process is not quite so simple and speedy as the pan-amalgamation; but it gives a better result and is less expensive. The complexity of the process, however, is only seemingly so to those who never operated with it before. This is the case with all new manipulations. After one week's operation this process appears simple and easily executed. There is no universal process for silver ores yet discovered; for the chlorination process itself, the nature of the ore must first be considered. But it may be safely conjectured that all ore treatable in barrels will also answer for the chlorination process; giving at the same time in most cases a better result and a purer metal.

It is not necessary that the ore should be very finely pulverized, unless it is very rich. Generally, dry crushing, with a sieve of 40 holes to the running inch, is sufficient. Whether salt should be used, and in what quantity, depends on the quality of the ore. One or two per cent. is usually sufficient. It is charged at the same time with the ore or after a short interval, as the case may require. The roasting is executed in the usual way, commencing with a low heat, and increasing it towards the end of the operation. When finished and cooled down, the ore must be wetted, as is done in the chlorination process with auriferous sulphurets; after this, it is placed in the vats for chlorination. Some kind of ores consume very little chlorine; but it must be produced in such a quantity as to fill up the vacant space in the vat containing the ore. By a simple apparatus the chlorine can be drawn over into another vat charged with ore prepared for chlorination, and the deficiency of gas supplied. The chlorine for this purpose can be kept in a reservoir.

The cover is then taken off and water introduced, by which the chloride of gold is dissolved and carried out into a precipitating vat. If there is copper in the ore, that metal will be dissolved, together with the gold, and precipitated; first, the gold by sulphate of iron—the copper by pieces of old wrought iron.

The chloride of silver which remains in the ore, must be dissolved by hyposulphite of soda, as is done in Patena's process. This salt, dissolved in cold water, is conveyed into the vat and allowed to filter through the mass, whence it flows into the precipitating vat. To hasten the filtration, a very simple, effective arrangement is applied at the bottom of the vat, so that even slimes, if not too tough, can be filtered speedily. This contrivance is very important in case it should be necessary to grind the ore finer on account of its richness, or if pan-tailings are subjected to this process. The filtration requires from eight to twelve hours.

The precipitation of silver from the argentiferous liquor is effected by polysulphide of sodium. Dissolved in water, it is poured into the precipitating vat until all the silver is thrown down as sulphide of silver. The liquid must be kept in motion vigorously, at the same time, in order to promote the clearing and precipitation. Care must be taken not to add more of the precipitant than is required to precipitate the silver. The process of precipitation seems to be complicated; but a workman can do it in fifteen minutes, even if the largest vessels are employed.

The sulphide of sodium, after the precipitation, forms hyposulphite of soda, and

for this reason the first supply of hyposulphite will serve for years as a dissolving agent, the wastage being more than fully replaced by the use of the precipitant.

The precipitated mass of sulphide of silver from the tubs is deposited in bags, like those used for amalgam filtration, pressed, dried, and, after a moderate calcination by which the greatest part of the sulphur is driven out, melted in crucibles with addition of some iron. The iron-matte formed above the metallic silver is skimmed off, some horax added, and the metal poured into molds.

The matte always contains some silver, and for this reason is turned back to the roasting, together with the ore.

Any further explanation with regard to this process can be obtained of Mr. Kustel, 611 Commercial street, (opposite the Mint,) in this city.

Taxing Mining Claims.

There is a disposition in some of the mining counties, on the part of the County Assessors, either upon their own volition or upon advice of County Attorneys, to take the ground that the recent decision of the Supreme Court, requiring that *all property* should be taxed in conformity with the State Constitution, does not include mining property, and that it is no part of their duty to assess such property. Whatever may be said as to the policy of taxing property in mining claims, we think there can be no doubt as to the meaning and intent of the decision referred to; or that, in case the direct issue is made, the parties raising it will be defeated, and thus put to useless expense.

The entire course of legislation and judicial decision in this State has ever recognized and protected a qualified ownership (property) of private individuals in mining claims; and the Supreme Court has now added to its previous recognition of this description of property a direct decision that *all property* must be taxed. It is now more than ten years since the same Court decided, in the case of the State *vs.* Moore, that although the property of the Government in land (in that case not mineral) was exempt from taxation, that exemption did not extend to the interest of a private individual in the same land. The two interests were severable; exemption from taxation was a privilege of the Government,—not an incident to the property. In the face of such a decision there can be no force in the objection that the decision cannot be applied to mineral land, on the ground that the value of land for precious minerals can only be conjectured, while its agricultural value can be readily decided—for there is a universal standard of value in the amount which any such property will bring at public sale.

In view of these facts, but without admitting the policy of such decisions, we think it will be useless for the miners to ignore the situation, and preposterous for the assessors to refuse to list any private interests which they may find in the mineral lands "according to their value." If continued exemption in this particular is to be sought for, we must go elsewhere than into the State Courts, for redress. We do not and never did believe in taxing the mines. We have ever held that every possible encouragement should be extended for their development and proper working. With the exception of now and then a notable instance of success, there is no branch of industry in the country which yields such small returns for labor as mining; and were it not for the fascination which clings around it—the constant hope of doing better, of making a "strike"—a large majority of the entire mining population of this coast would quit the business at once and seek some other, more reliable and better paying employment.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

Our Manufacturing Industries.

The manufacturing interests of California are rapidly assuming a large importance; fresh branches of industry are springing up in every direction, with a rapidity of succession which would do credit to even many of the older and more densely populated States of our Eastern border. We are now able to produce almost all the necessary articles of daily consumption, and at a cost inside of that required for laying them down here from the Eastern States. The yoke of dependence upon foreign manufacturers no longer galls,—we shall soon become quite free from the system which formerly obtained of making our wants subservient only to the gain of the importer. Already has our commerce reversed the history of the past;—for we are now "carrying coals to Newcastle," in supplying the Eastern market with breadstuffs. Honest industry has built for itself a well-earned reputation on these shores which can never be shaken by revulsion, or influenced, to any disastrous extent, by a plethora in any class of our productions. In no part of the world is labor so well rewarded as here, and the demand therefore grows healthier year by year. Our field of industry is an ample one, and will never fail, so long as talent, enterprise, industry and capital are present to embrace and realize it.

For manufacturing industries the State of California possesses most marked and manifold advantages. We have never been more forcibly struck with these advantages than while reading a few of the advance sheets of the "Material Wealth of California," by H. V. Cronise, the work which we noticed at considerable length in our issue of April 11th. Foremost among the advantages, as there passed in review, is the vast and widely diffused water-power found in the hill and mountain districts throughout all the northern and eastern sections of the State. The amount of power that may be utilized by a full and economical appropriation of these advantages would, to one unacquainted with their nature and extent, seem almost incredible. It is scarcely equalled by all the water-power of the New England and Middle States combined. The future location of manufactories, foundries and machine shops throughout this district, will be but bringing them to the very doors of the consumers, who will yet be numbered by millions throughout our mining districts, and our fertile hillsides, valleys and plains. The construction of short and cheap railroads, as feeders to our main lines, will place almost every quarter section of this vast region,—producing mineral, building materials, wines and agricultural productions of every description,—in direct and easy steam communication with the seaboard and a market, and thereby blend all these varied interests into one magnificent whole, by which they will "grow up in harmony, mutually depending upon and aiding one another." The influence of this vast and varied net-work of industries upon the larger towns of the State, and particularly upon San Francisco and its suburbs, can scarcely be estimated.

There is another view of the advantages which this State possesses over almost, if not every, other country as yet opened up to manufacturing industries, which, though important, is seldom taken into consideration. It is alluded to in the unpublished pages before us as follows:

"California enjoys in her genial and salubrious climate another great advantage over most manufacturing countries. In that part of the State where these multifarious industries are likely to grow up, it can almost be said that there is no winter. The heat of the summer in the interior is long continued, and in many localities for a time oppressive, though never debilitating, owing to the cool nights that prevail throughout that season. During the remainder of the year the weather there is for the most part delightful,—out-door laborers seldom suffering from either heat or cold. In California the mill-wheel is rarely ever

pinioned by frost, or the paths that lead to the workshops and factories obstructed by snow and ice. Neither is the craftsman ever forced to go shivering to his task, or labor in a chilled and freezing atmosphere—the benignant climate invigorating the system and relieving toil of its greatest hardships. Here the shops and factories do not require to be kept constantly closed to economize the heat within, compelling the operative to labor in a foul, fetid and debilitating atmosphere, destructive to health and depressing to the spirits. Except in the more elevated districts, the temperature is such that even in winter all active employments may be comfortably pursued in the outer air with open doors. In this mildness of the climate the artisan classes will ever find a safeguard against sickness and discomfort, while it reduces materially the cost of living, in the saving of fuel, clothing and shelter. The quantity of fuel required for a small family does not amount to more than half as much in California, take the year through, as is necessary anywhere throughout the Northern and Middle States of the Union; while the cost of clothing, notwithstanding somewhat higher prices, is considerably less than in the Eastern States; the difference in the expense of constructing dwellings being still greater in favor of California. It is estimated by competent judges that at least twenty per cent. more service is rendered the employer here than in most other countries, in consequence of the greater mildness and salubrity of the climate."

The value of the various articles manufactured in San Francisco, during the year 1866, is estimated in the above work at \$20,000,000; while the aggregate value of the manufactures of the entire State are set down at \$30,000,000. To describe, in detail, the progress which has already been made in founding and building up manufacturing interests in this State, would require the compass of an extensive volume; we can here merely allude by name to some of the leading branches which have attained success, as follows: woolen and cotton goods of all kinds, machinery and steam engines, brass work, hemp and wire rope, leather, powder, fuse, paper, glass, salt, soap, candles, chemicals, matches, oil, lime and cement, lead-pipe, sheet lead and shot, marble-work, pottery, boots and shoes, saddles, harness and trunks, wagons, carriages, cars, agricultural implements, furniture, pianos, barrels (by machinery and hand), brooms, wooden-ware, type, cigars, clothing, furs, dried fruits and vegetables, silk, wines, brandies, etc.

It is to the introduction of these branches of manufacture, and to our recent extensive production of breadstuffs, that we are indebted for the new impetus which has recently been given to business of all kinds in this State. By the inauguration of this policy our State has been saved from what might otherwise have been an almost fatal financial prostration. Our future success still depends upon this commingling of industrial pursuits. Without it all the millions of gold and silver which we can dig from our mountains, will be required to pay for machinery, clothing and provisions from abroad. By the introduction of these industries, we are constantly creating new demands for a long catalogue of articles of necessity and luxury. In supplying them we shall continually find foreign outlets for the products of our shops and factories, until the larger part of our bullion products will be required at home to be distributed among our own people, while the product of their manufacturing industries alone will be nearly sufficient to pay our foreign bills. It is by such a policy, and by such only, that we can build up on this coast the empire which may be ours, if we will rightly employ the advantages which nature has so abundantly laid at our doors.

FRENCH ARCTIC EXPLORATION.—An expedition will leave France during the present season for the Arctic ocean. It will be under the management of M. Gustave Lambert, who returned last year from that region via Behrings Straits. It will make an attempt to reach the open Polar Sea, the existence of which has been already determined by Dr. Hayes.

The California Fuse Factory.

We have already made mention of the contemplated establishment of a fuse factory, in this city, for the home and ready supply of all blasting operations. This establishment was first started about ten weeks since, on a somewhat limited scale, at a point near the glass works on the Potrero. The success which has attended them thus far, and the decided preference manifested by all who have used California manufactured fuse, has encouraged the proprietors to greatly enlarge their works; a step which has indeed become necessary in order to meet the increasing demands for their manufacture.

We took occasion, a few days since, to visit the establishment, where we found the machinery in full operation, and preparations being made for the proposed enlargement of the works. The manufacture of blasting fuse is a most interesting operation, and, in order to produce a good and reliable article, the utmost care and attention is required. The company is composed entirely of practical men, who are, with one exception, miners, and fully understand what is wanted, having often experienced the disadvantage of being compelled to use an inferior article, at great cost and loss of time. Messrs. Eva and Powning, the two principal proprietors, and the projectors of the enterprise, give the work their undivided personal attention, as it is their determination to furnish a home product at a price and of a quality which shall remove any occasion for sending abroad for this important article.

The importance of having fuse freshly made, and direct from the manufactory, is well understood by those whose lives are often endangered by working with a defective article. Much difficulty is encountered in the use of imported fuse from its deterioration in transportation. In passing through hot climates, as it must, to reach California, the tar or other material with which it is covered, is liable to penetrate to the powder, and destroy the continuity of the conducting medium of the fuse, thereby causing frequent failures in blasts, and greatly delaying operations generally, besides endangering the lives of those engaged in such work.

It is also found necessary, in many of our deep mining operations, to employ fuse of unusual lengths—longer than any which is imported. This establishment is prepared to furnish such extra lengths to any extent which may be required, and for any special purpose.

The factory at the present time has a capacity for the manufacture of from 12,000 to 15,000 feet per day, which will be increased from time to time to meet the demands of the market.

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20v14n9p SAN FRANCISCO.

Dissolution of Copartnership.

MR. E. T. KING HAS THIS DAY RETIRED FROM the firm of "Howland, Angell & King," the undersigned having purchased his interest and assumed all the liabilities. Our copartnership name will hereafter be Howland, Angell & Co.

W. H. HOWLAND,
H. B. ANGELL,
CYRUS PALMER.
San Francisco, April 20, 1868. 17v16-4w

Smelter Wanted.

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This plan has been projected for the purpose of aiding all who may wish to benefit by it in obtaining lots at a very low rate, and thus giving to each an opportunity to share in the profits of home-built lots.

The officers of this Association are reliable business men, and one of our principal banks will be the Treasurer of its funds.

Having been appointed Agents until the organization is completed, we are ready to give to our friends and the public all the information on the subject that an experience of eighteen years in real estate in San Francisco qualifies us to render them.

The Books of Subscription are now open. Large Maps of the property of the Association will be furnished to subscribers within a week. Our subscription is open every evening, until 9 o'clock.

DUNN & CO.,
Agents for the City Land Association,
17v16-1t 427 Montgomery street.

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MANUFACTURING COMPANY,

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It is often the case that extra lengths are required, as exploding tunnels, etc., longer than is furnished in the imported article. Fuse of every desired length or size can be made to especial order, at the above manufactory.

Manufactory, . . . Potrero, San Francisco.

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17v16n9p

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[Extract from report of the Home Office, for Dec. 1867.]
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GEO. T. SHIPLEY, M. D., Manager.

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KUSTEL'S NEW WORK, CONCENTRATION

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For Gold-Bearing Sulphurets, Arsenurets, and Gold and Silver Ores generally.

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DEWEY & CO., Publishers,

Office of the Mining and Scientific Press, 505 Clay street,
16v11f SAN FRANCISCO.

Notice.

MR. RUSSELL, WHO CALLED ON US IN MAY, 1867, in reference to an analysis, will hear something to his advantage, by addressing FALKENAU & HANKS, 12v16 619 Montgomery st., P. O. Box 1180, San Francisco

To the Mining Public.

THE SUBSCRIBER HAVING SERVED FOR THE LAST twenty years as Superintendent for various Companies, working mines of Gold, Copper, and Argentiferous Galena, offers his services to examine and report upon mines and mineral property. Reports accompanied by Plans, Sections and other Drawings. Also would be willing to take the management of any legitimate mining enterprise. If necessary, satisfactory reference given. Address, 14v16f H. U. SHELTON, Copperopolis, Cal.

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STOCKTON, CAL.**KEEP, BLAKE & CO.,**
MANUFACTURERS OF**Quartz, Saw and Grist Mill Irons, Steam**
Engines, Horse Powers,Mining and Irrigating Pumps, Car Wheels, Derrick Irons,
House Fronts, Iron Fencing, Balcony Railings, etc.,
at San Francisco prices. Orders solicited
13v13-1y and promptly executed.**GEORGE T. PRACY,**
MACHINE WORKS,
Nos 109 and 111 Mission street, between Main and Spear,
SAN FRANCISCO.**STEAM ENGINE, FLOUR AND SAW MILL**
And Quartz Machinery, Printing Presses,—AND—
MACHINERY OF EVERY DESCRIPTION MADE AND
REPAIRED.
Special attention paid to Repairing. 13v14-1y**SAN FRANCISCO**
Foundry and Machine Works,N. E. Cor. Fremont and Mission streets,
Manufacturers of
Marine and Stationary Engines
Quartz Machinery, Saw, Flour and Sugar Mills, Mining
Pumps, Hoisting Gear, Agricultural Implements, etc.—ALSO—
Wine, Cider, Cotton and Tobacco Presses
of the latest Improved Patterns.**STEAM ENGINES AND BOILERS,**
Of all sizes, constantly on hand; Quartz Mill Shoes and
Dies warranted to be made of the best white iron.**Dunbar's Improved Self-Adjusting Piston**
Packing, requires no springs or screws; is always steam-
tight, without excessive friction, and never gets slack or
leaky.**MACHINERY OF ALL DESCRIPTIONS**
Bought, sold, or exchanged. Bolt Cutting and Castings at
the lowest market rates.6v11-1y **DEVOL, DINSMORE & CO**LEWIS COFFEY. J. S. HEDSON
LEWIS COFFEY & RISDON,**Steam Boiler & Sheet Iron Works.**The only exclusively Boiler Making establishment on the
Pacific Coast owned and conducted by Practical Boiler
Makers. All orders for New Work and the repairing of Old
Work, executed as ordered, and warranted as to quality.
Old Stand, corner of Bush and Market streets, opposite
Oriental Hotel, San Francisco.

Miners' Foundry

MACHINE WORKSNos. 245 to 255 FIRST STREET,
San Francisco.**HOWLAND, ANGELL & KING,**
PROPRIETORS,**Manufacturers of Machinery for****QUARTZ MILLS. FLOUR MILLS,**
SAW MILLS. SUGAR MILLS,
POWDER MILLS. PAPER MILLS**Steam Engines of all Kinds.**
Amalgamators of all Kinds.**MINING PUMPS. HOISTING WORKS**
OIL WELL TOOLS. ROCK BREAKERS,—AND—
Machinery and Castings of all kinds, either
of Iron or Brass.**Boilers and Sheet Iron Work in all its**
Branches.**Shoes and Dies of White Iron, manufactured**
for and imported by us exclusively for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.**Russia Iron Screens, of any degree of fineness**
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.**W. H. HOWLAND E. T. KING,**
H. R. ANGELL, CYRUS PALMER.
13v14-1y**FULTON****Foundry and Iron Works.****HINCKLEY & CO.,**

MANUFACTURERS OF

STEAM ENGINES,**Quartz, Flour and Saw Mills,****Huyes' Improved Steam Pump, Ericsson's Im-**
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How
ard street, San Francisco. 3-1y**BAURHYTE, McAFEE & SPIERS,**
BOILER MAKERS
AND GENERAL MACHINISTS,

Howard st, between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral
courses. Upright Flue or Tubular Boilers, Locomotive and
and Marine Boilers, and Wrought Iron Tanks of every de-
scription.**Hydraulic Pipe supplied at reasonable rates. In or-**
dering, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to
be used.**Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in re-**
pair with promptness.**To Boiler Makers and Machinists in the In-**
terior.—The firm is prepared to furnish estimates of
Boilers, supply new Ends, drilled and punched, and attend
to the selection and forwarding of Iron for Boilers, Pipes
and other purposes.**Plans, Drawings and Specifications.—The firm**
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.**To Inventors.—The firm is prepared to assist in de-**
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their Inventions, giving them the ben-
efit of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their inventions. 1v16f

J. NEWHAM.

J. BIGWOOD.

SOUTH BEACH IRON WORKS,

Near corner of King and Third streets, San Francisco.

MARINE ENGINES,

AND ALL KINDS OF

MACHINERY FORGING.All kinds of Ship-smithing and Mill work manufactured to
order. Jobbing of every description promptly attended to.
All work done guaranteed. 13v14-1y**CALIFORNIA****TOOL AND FILE FACTORY.****Blacksmith and Machine Shop.**No. 38 Fremont street, between Market and Mission, S. F.
Job Cradling and Polishing done at shortest notice.Special premium awarded at the last State Fair, Sacra-
mento. 4v15-1y J. WEICHHART.**LINCOLN IRON WORKS,**

No. 51 Beale st., bet. Market and Mission.

D. & W. FOURNESS, Prop'rs.**STEAM ENGINES,**Flour and Sawmills, and MACHINERY of all descriptions
made and repaired at shortest notice.Particular attention paid to repairing Reynold's Cut-off
5v14-1y**CALIFORNIA BRASS FOUNDRY.**No. 125 First street, opposite Mission,
SAN FRANCISCO.All kinds of Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Shovel
Nails, Rudder Braces, Hinges, Ship and Steamboat Bel-
lows of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.—PRICES MODERATE.—
J. P. GALLAGHER. J. H. WEED. V. KINGWELL.
13v13-1y

CITY IRON WORKS COMPANY.

CLERC & CO.,
IRON FOUNDERS.**Steam Engine Builders, and Makers of all**
kinds of Machinery.

16v16-1y No. 28 Fremont street, San Francisco.

I. H. SMALL,
MACHINE SHOP.**Steam Engines, Sawmills, Mining Machinery,**
Saw Arbors, Wood Cutting Machinery,
and Wood Planers.Repairing of all kinds done with promptness and dispatch.
Orders of all kinds cut at short notice, corner of
Market and Beale st. San Francisco 6v15-3m**JAMES MACKEN,**
COPPERSMITH.No. 226 Fremont st., bet. Howard & Folson.
All kinds of COPPER WORK done to order in the best
manner. Particular attention paid to Steamboat, Sugar
House and Distillery work.Repairing promptly and neatly attended to.
13v11**DUDGEON'S**
PATENT
HYDRAULIC LIFTING-JACKS,—AND—
BOILER PUNCHES.Eight street, cor. Minna,
SAN FRANCISCO.

14v16-6m

To Foundrymen and Blacksmiths.**LUMP LEHIGH and CUMBERLAND COAL, IN ANY**
quantity, sacked and shipped to any part of the coun-
try, by
JAS. R. DOYLE, Coal Dealer.413 and 415 Pacific street,
bet. Sansome and Montgomery, San Francisco.

24v15-3m

Japanning!**EQUAL TO ANY AT THE EAST, DONE ON ALL KINDS**
of Hardware and Carriage Work. Damaged Goods re-
stained; Sewing Machines Japanned and Ornamented.
513 Fourth Street, between Bryant and Welch, San Fran-
cisco. 5v16-3m

N. A. BALL & CO., Prop'rs.

California Steam Navigation
COMPANY.

Steamer CAPITAL.....CAPT. E. A. POOLE

" CHRYSOPOLIS.....CAPT. A. FOSTER.

" YOSEMITE.....

" CORNELIA.....CAPT. W. BROWLEY

" JULIA.....CAPT. E. CONKLIN.

Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with the drail steamers for Marysville,
Colusa, Chico, and Red Bluff.Office of the Company, northeast corner of Front and
Jackson streets.13v12 B. M. HARTSHORNE,
President.**International Hotel,**
JACKSON STREET.

BETWEEN MONTGOMERY AND KEARNY STS.,

SAN FRANCISCO, CAL.**THIS OLD ESTABLISHED HOUSE IS IN PERFECT**
order for the accommodation of guests. Persons seek-
ing comfort and economy will find this the best Hotel in
the city to stop at. The beds are new and in good order,
and the Rooms well ventilated. The Table will always be
supplied with the best in the market.**Prices vary from \$1.50 to \$2 per day for**
Board and Room.**FINE BATH HOUSE AND BARBER SHOP ATTACHED**
TO THE HOUSE.Teams belonging to the House will be in attendance
at all the boats and cars to convey passengers to the House
FREE OF CHARGE, and to any part of the city for 50 cents
21v12 F. E. WEYANT, Proprietor.**CARD.****THE UNDERSIGNED, SINCE DISPOSING OF HIS**
Gallery on Montgomery street, has seldom been in the
street without being asked where the best photographs
were taken. Now, for the benefit of his friends and the
public generally, he would recommend them to go to the
COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY,
No. 32 Kearny street, now owned and occupied by Messrs.
HALEY & SCRIPTURE. Both of these gentlemen are
professional photographic artists—one of them having
been in the business more than twenty years—and cannot
be surpassed by any one in the State.**Persons wishing photographs taken will do well to give**
them a call. The above named gallery is one of the finest
and most convenient in San Francisco, being situated on
the second floor, and its proprietors are the most accom-
modating and gentlemanly men in the business.**JAMES WISE, Portrait Painter.**
N. B.—Prices as low as at any other Gallery in the city.**Stereoscopic Views of California Scenery, at whole-**
sale and retail, at the Cosmopolitan Art and Photographic
Gallery, No. 322 Kearny street.**HALEY & SCRIPTURE,**

7v16-3m Proprietors.

Mining Secretary.**THE SUBSCRIBER, HAVING SERVED FOR THE LAST**
five years as Secretary of various mining companies,
feels fully competent to serve in that capacity. Any
parties wishing the services of a Secretary can be
accommodated on reasonable terms. Information given,
and all necessary papers correctly made out.**Having had a long experience in the purchasing of goods**
and machinery for miners, parties in the mine will find
to their advantage, where purchasing agents are employed,
to send their orders to the undersigned.**J. M. BUFFINGTON,**Room 37, New Merchants' Exchange, California street,
San Francisco. 14v15-1f**\$100 A MONTH SALARY WILL BE PAID FOR**
each cent made or found, in a new, pleasant, per-
manent business. Full particulars sent by return mail, of
sample returning at \$4.50 for \$50 cents. A. D. BOWMAN &
CO., No. 4 Broad street, New York.
[clip out and return this notice.] 10v16-3m**SILVER IN GEORGIA.**—A Gainesville cor-
respondent of the New York Stockholder
says: "I have opened a vein of argentif-
erous galena from 5 to 10 feet thick, and
yielding from \$10 to \$60 per ton of silver
and from \$5 to \$50 of gold. One assay
reached \$2,176; from twelve assays the
average was \$44, excluding that of \$2,176.
The vein has been opened out 20 feet at
three points 100 yards asunder, at one of
which the sulphurets are iron. It is nearly
vertical in micaceous slate that dips (south-
east) 40 degrees. The range of the assays
is higher than from the celebrated Comstock
Lode, which varies from \$15 to \$40, with
occasional flights to \$500 and \$2,000. But
the cost of working their ore is about \$16
per ton. This can be mined for \$4. There
miners' wages are \$5 per day, here \$1 to \$2.
There wood costs \$16 per cord, here \$1.50,
and everything in proportion. The pros-
pect is very favorable for this section being
rich in silver. The predominant rock is
granite, gneiss, micaceous and talcose slates,
accompanied with hornblende, steatite, ita-
columite, etc."**ASPHALTE FOR ROADS.**—Asphalte was in-
troduced into Paris in 1854, by M. Mom-
berg. The asphalte used is a natural com-
position of pure carbonate of lime and
bitumen, or mineral tar. The bituminous
limestone is crushed into powder, and af-
terwards heated to a temperature of about 140
degrees centigrade. It then remains in a
state of fine dry powder, somewhat similar
in its consistency to molder's sand, and in
this form it is employed in the streets. The
roads to be paved are first covered with a
layer of concrete made of cement, and this
layer is carefully dried before the applica-
tion of the asphalte cover. The asphalte
powder is then reheated and spread over
the surface of the concrete in an even layer
of about four centimetres, or one and three-
fifths of an inch in thickness throughout.
After this the powder is well rammed and
compressed by means of heated cast iron
rams, worked by hand. This being done,
a heated roller, weighing about four cwt.,
is passed over it, and is repeatedly traversed
over each short length of pavement newly
rammed in. Two larger rollers of sixteen
cwt. and two tons respectively are after-
wards employed in flattening down the
whole. The pavement is ready for use two
or three hours after the first roller has been
passed over it.—Iron Age.**SPEED ON ENGLISH RAILWAYS.**—The fast-
est train in England is on the Great West-
ern Railway. It travels every day 194
miles, with four stoppages amounting to 20
minutes, in 4½ hours, or at the rate of 43
miles an hour. The greatest exceptional
run ever made in Great Britain was in 1862,
when the answers were brought to the dis-
patches sent to Washington respecting
Messrs. Mason and Slidell. The train from
Cork to Dublin ran at the rate of 41 miles
an hour. The mail steamer from Dublin
reached Holyhead at 8:15 in the morning.
At 8:28 the special train left London and
performed the whole distance in exactly
five hours, or at a speed of 52½ miles an
hour—a speed unparalleled for so long a
distance on a line crowded with traffic. By
means of an invention for supplying the
tender with water from a trough in transitu,
the engine ran 130 miles without polling
up to take water. This is the longest run
ever made by any engine in the country
without stopping. In France the fastest
trains do not exceed 34 miles an hour; in
Belgium, 34½; in Prussia, 31½.**THEORY OF METALLIC DEPOSITS.**—The
following is a paragraph by Prof. T. Sterry
Hunt, in 1861:—"The metals of the Que-
bec group seem to have been originally
brought to the surface in watery solution,
from which we conceive them to have been
separated by the reducing agency of or-
ganic matter in the form of sulphurets, or
in the native state, and mingled with the
contemporaneous sediments, where they
occur in seeds, in disseminated grains,
forming fuhbands, or, as at Acton, Canada,
are the cementing material of conglomer-
ates. During the subsequent metamor-
phism of the strata, these metallic materi-
als being taken into solution by alkaline
carbonates or sulphurets, have been re-
deposited in fissures in the metalliferous
strata, forming veins, or ascending to higher
beds, have given rise to metalliferous veins
in strata not themselves metalliferous. Such
we conceive to be, in a few words, the the-
ory of metallic deposits; they belong to a
period when the primal sediments were
yet impregnated with metallic compounds,
which were soluble in the permeating
waters."

SHEFFIELD CUTLERY.—A writer in *Harper's Magazine* for March, speaking of a visit to the show-rooms of the Sheffield Works, notes the effect of the sudden pass from the making of armor plates for ironclads to a room where were seen twelve perfect pairs of scissors, all together weighing exactly half a grain. The writer thus proceeds:—"Sheffield has hardly another sight so fascinating as these show rooms. Here is a little foathery steel flower, whose petals are blades; and there a knife whose handle of carved ivory is a foot long, which holds a whole set of surgical instruments, and 95 blades adorned with American views—a knife made for the Exhibition of 1861 at a cost of £966. The most curious knife, perhaps, was one containing 1,867 blades—a new one being added every year. The handle is already a foot and a half high."

All About Sending Money by Mail.

RATES OF COMMISSION.—The following are the rates charged (in currency) for transmitting money to any part of the United States:

On Orders not exceeding \$20.....10 cents.
Over \$20 and not exceeding \$50.....25 cents.
No fractions of cents to be introduced in an Order.
United States Treasury Notes, or National Bank Notes only received or paid.
To send over \$50, additional Orders must be obtained.
Post Offices where Money Orders may be obtained will furnish blanks as follows, which the applicants will fill out:
No. Amount Date,, 188 ..

MONEY ORDER.

Required for the sum of \$.... Payable at
State of Payable to Residing at
Residing at State of Sent by
Entered in REGISTER:

Names of parties and places, and the sums, to be written in the plainest possible manner.
As there are several places of the same name in the United States, applicants must be careful to indicate which of them they mean; and the Postmaster will satisfy himself, before writing out the order, that the place indicated is the one intended.

List of Money-Order Post Offices in the Pacific States and Territories, May 20, 1897.

CALIFORNIA.

Office.	County.	Office.	County.
Auburn.....	Placer.	Napa City.....	Napa.
Benicia.....	Solano.	Nevada City.....	Nevada.
Camptonville.....	Yuba.	Oakland.....	Alameda.
Clifton.....	Butte.	Oroville.....	Butte.
Colusa.....	Tuolumne.	Petaluma.....	Sonoma.
Downsville.....	Colusa.	Placerville.....	El Dorado.
Dutch Flat.....	Sierra.	Red Bluff.....	Tehama.
Eureka.....	Placer.	Sacramento.....	Sacramento.
Folsom City.....	Humboldt.	San Rafael.....	Marin.
Forest Hill.....	Sacramento.	San Francisco.....	San Francisco.
Georgetown.....	Placer.	Santa Cruz.....	Santa Cruz.
Gibsonville.....	El Dorado.	San Jose.....	San Jose.
Gilroy.....	Sierra.	Santa Rosa.....	Sonoma.
Grass Valley.....	Santa Clara.	Shasta.....	Shasta.
Healdsburg.....	Nevada.	Sierra.....	Tuolumne.
Imperial Valley.....	Sonoma.	Stockton.....	San Joaquin.
Jackson.....	Amador.	Suisun City.....	Solano.
Jackson.....	Amador.	Susana.....	Lassen.
Los Angeles.....	Los Angeles.	Vacaville.....	Solano.
Mariposa.....	Mariposa.	Valljo.....	Solano.
Marquette.....	Alpine.	Watsonville.....	Santa Cruz.
Marysville.....	Yuba.	Weaverville.....	Trinity.
Martinez.....	Contra Costa.	Wilmington.....	Los Angeles.
Mokelumne Hill.....	Calaveras.	Yreka.....	Siskiyou.
Monterey.....	Monterey.		

NEVADA.

Office.	County.	Office.	County.
Virginia City.....	Storey.	Austin.....	Lander.
Carson.....	Ormsby.	Aurora.....	Esmeralda.

OREGON.

Office.	County.	Office.	County.
Albany.....	Union.	La Grande.....	Union.
Canyon City.....	Grant.	Oregon City.....	Clackamas.
Corvallis.....	Benton.	Portland.....	Multnomah.
Dallas.....	Polk.	Roseburg.....	O Douglas.
Eugene City.....	Jane.	Salem.....	Marion.
Jacksonville.....	Jackson.	The Dalles.....	Wasco.
Lafayette.....	Yam Hill.	Umatilla.....	Umatilla.

IDAHO TERRITORY.

Office.	County.	Office.	County.
Boise City.....	Ada.	Ruby City.....	Owyhee.
Idaho City.....	Boise.	Lewiston.....	Ney Perce.

MONTANA TERRITORY.

Office.	County.	Office.	County.
Helena.....	Edgerly.	Virginia City.....	Madison.

WASHINGTON TERRITORY.

Office.	County.	Office.	County.
Olympia.....	Tribun.	Vancouver.....	Clark.
Steilacoon City.....	Pierce.	Walla-Walla.....	Walla.

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER.

Black Diamond, in 1b canisters.
do do in 1/2 lb canisters.
do do in 1/4 lb kegs.
Hunter's Pride, in 1b canisters.
do do in 1/2 lb canisters.
do do in 1/4 lb kegs.
do do in 1/2 lb kegs.
Pacific Mills River Shooting, in 1b canisters.
do do in 1/2 lb canisters.
do do in 1/4 lb kegs.
do do in 1/2 lb kegs.
do do in 1/4 lb kegs.
do do in 1/2 lb kegs.
Pacific Mills Rifle, in 1b canisters.
do do in 1/2 lb canisters.
do do in 1/4 lb kegs.
do do in 1/2 lb kegs.
do do in 1/4 lb kegs.
do do in 1/2 lb kegs.
Blasting and Mining Powder \$2.50 per keg.
Safety Fuse and Shot for sale by
HAYWARD & COLEMAN, Agents.
2416-3m 414 Front street, San Francisco.

Copperas! Copperas!

75,000 LBS. IMPORTED COPPERAS-SULPHATE
of Iron—for sale in lots to suit, by
BENJ. BRADY, 104 California street,
S. W. corner Davis, up stairs.
12.15 3m



Office Pacific Business College and Telegraphic Institute.

Mechanics' Institute Building, Post Street. [Exterior View.]

A. de LEO de LAGUNA.

[10x15-3m]

JAMES VINSONHALER.

WM. SHERMAN & CO.,

CLOTHIERS,

MERCHANT TAILORS.

AND DEALERS IN

Men's Furnishing Goods,

TRUNKS,

Traveling Bags, Valises, etc.

THE LARGEST

AND BEST SELECTED STOCK

IN THE STATE.

No. 608 Montgomery street, East Side,
North of Clay,

SAN FRANCISCO.

1516 3m 1p



THE FLORENCE

RECEIVED THE HIGHEST PREMIUMS

At all the most important Fairs held in the United States in the year 1897. Gold Medals at the American Institute Fair, New York; Mechanics' Association Fair, Lowell; Maryland Institute Fair, Baltimore. Highest Premium at the New York State Fair, Buffalo, and at the Great New England Fair, Providence. At the Fairs held on the Pacific Coast, this machine has taken

Every First Premium

Awarded on Family Sewing Machines in the L' ST FIVE YEARS. It there is a Florence Machine within one thousand miles of San Francisco, that is not giving entire satisfaction, if I am informed of it, it will be attended to without express charge or expense of any kind to the owner.

SAMUEL HILL, Agent.

1116-4m 111 Montgomery street, San Francisco.
Practical Mining and Milling Processes Described.

BEAN'S HISTORY AND DIRECTORY OF NEVADA COUNTY, CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Ohlone and other processes; Geological Formation of the most noted mines in California, etc., etc.

COMPILED BY EDWIN F. BEAN.

Editor and Publisher of the Nevada Daily Gazette.

Price, \$5.—For sale at the office of the Mining and Scientific Press, San Francisco. 1516 4f

HO TEAMSTERS!

CONTINUE TO

USE HUCKS & LAMBERT'S

CELEBRATED

H & L Axle Grease,

To which you have given so decided a preference for the last

FOURTEEN YEARS,

It is the only reliable article

IN THE MARKET

Every care will continue to be used to sustain the high reputation the H & L Axle Grease, has so long and justly attained.

Be sure and ask for the H & L brand, and see that the

TRADE MARK H & L

IS ON THE COVER OF THE PACKAGE

NONE OTHER IS GENUINE.

FOR SALE IN EVERY STATE IN THE UNION.

61660w1f

MINERS' LAMPS!

SCRANTON PATTERN,

FOR SALE BY

LOCKE & MONTAGUE,

112 and 114 Battery street,

SAN FRANCISCO.

1316-3m

SPRING FASHIONS

FOR 1898!

MEUSSDORFFER'S

NEW STYLE OF

DRESS HATS

For Spring and Summer, will be introduced

On Saturday, February 29th,

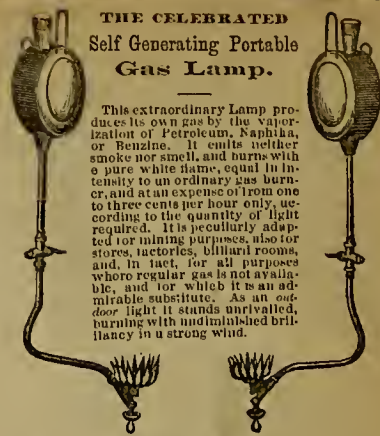
635 and 637 Commercial street.

9v161f

Important to Californians.—Many inventors have lately had their claims for Patents seriously (and in some cases fatally) delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of honest agents, are none the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. This Mining and Scientific Press Patent Agency has strictly complied with the regulations of the Department, and properly filed all necessary papers as Claim Agents.

Mechanical Drawings.

Persons wishing Mechanical Drawings can obtain the services of competent draftsmen, by applying to this office



THE CELEBRATED Self Generating Portable Gas Lamp.

This extraordinary Lamp produces its own gas by the vaporization of Petroleum, Naphtha, or Benzine. It emits neither smoke nor smell, and burns with a pure white flame, equal in intensity to an ordinary gas burner, and at an expense of from one to three cents per hour only, according to the quantity of light required. It is peculiarly adapted for mining purposes, also for stores, factories, billiard rooms, and, in fact, for all purposes where regular gas is not available, and for which it is an admirable substitute. As an outdoor light it stands unrivalled, burning with undiminished brilliancy in a strong wind.

Directions for Use.

Charge the reservoir with the prepared fluid, or with Benzine, from half to three-fourths full; allow a portion to run through into the cup, then turn off the tap and ignite the fluid, which will heat the burner sufficiently to generate the gas, which will be seen issuing from the top. The tap must now be turned on, and a steady light will be maintained till the whole of the contents of the reservoir is consumed.

A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—by turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vise and the burner screw off the burnt cotton must then be withdrawn, and a fresh piece of stout cotton rag, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.
Manufactured solely by JOHN J. HUCKS, original proprietor. Factory, North Beach, San Francisco; and for sale by his agents in every city and town throughout the State. 1516-3m-8

THE GOLDEN ERA.

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As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it.

WM. H. TILLINGHAST, Sub-Manager.

We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several to Vaults and Safes, to entire satisfaction to parties interested.

KITTSBUE & LEAVITT,

Pioneer Iron Works, cor. Fremont and Market sts.

SAN FRANCISCO, May 6, 1887.

I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair, and for Safes and Vaults in every respect as good as any other improved combination lock which I am acquainted with.

JOHN R. SIMS,

Vault Manufacturer, Oregon street.

JACKSON, April 27, 1887.

I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:

- 1st—Because it is impossible for either burglar or expert to pick it.
- 2d—The lock being constructed without a key-hole, it cannot be blown to pieces by powder.
- 3d—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.

R. COSNER.

Attested by J. C. SHIPMAN, County Clerk.

JACKSON, April 27, 1887.

The undersigned, Treasurer of Amador County, do hereby certify, that I am now using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's Safe. I have no fear of any hydra-headed gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe every few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.

OTTO WALTHER.

Attested by J. C. SHIPMAN, County Clerk.

CALIFORNIA LOCK ARCADE.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Powder and Burglar-Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the Press several months since. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable claims asserted in favor of the Lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly first fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.—*[Mining and Scientific Press, Sept. 29, 1886.]*

They are the only SAFE lock ever invented. Every State and County treasury vault, and every bank and business place should have one.—*[Amador Ledger.]*

This is a lock in which a series of rotating annular tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair.—*[Sacramento Union.]*

We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar-Proof Lock to be the most reliable lock constructed.

F. MARKT & C. FLIKSBEL,

No. 18 Post street.

REFERENCES:

R. COSNER, Sheriff.
O. WALTHER, Treasurer.
W. JENNINGS,
C. H. INGALLS, } Supervisors.
L. MC LAINE,

Any good blacksmith can put this lock on safe doors. Box or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be.—*[See page 30 in Pacific Coast Directory.]*

A deaf or blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.

19v14:ny11414.1am

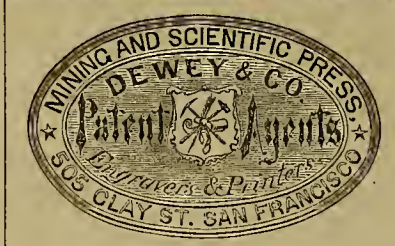
ELECTROPATHY, as a system of medical practice, is based upon the principle of electricity,—which is recognized by the adherents of the system as the organizing, animating and sustaining power in the vegetable and animal economy. It is claimed that the nervous system, with the brain as the center, is the instrument through which electricity acts. Let the condition of the nervous system be changed electrically, and there is at once a corresponding change in the manner in which the vital functions are performed. This subtle element, physiologically considered, is viewed by the school of electropathists as the connecting medium between mind and matter; and while it is not claimed to be itself vitality, it is believed to be the vitalizing power.

Dr. Rohland, who claims to have perfected the application of this element as a healing agent,—having practiced the system in the United States for more than twenty years,—has recently opened an electropathic establishment at No. 323 Kearny street, for the treatment of certain diseases. See card in advertising columns. *

THE BIG TREES.—Messrs. Sperry & Perry have had a section of the trunk of the prostrate monster "Original," sawed and photographed. Although cut at some distance from the stump, the section is twenty feet in diameter; and that, too, without its bark, which was removed some years ago and sent to London for exhibition. One of these trees,—the "Leaning Tower,"—has fallen since the last visiting season.

SEND FOR FREE CIRCULAR AND CONFIDENTIAL ADVICE.

ESTABLISHED.....MAY, 1860

Mining and Scientific Press
PATENT AGENCY.

DEWEY & CO.,

SOLICITORS OF

American and Foreign patents,

505 Clay Street, corner Sansome,
SAN FRANCISCO.

Patent Cases of every kind conducted. Attention given to Re-issues, Extensions, Interferences, Rejections, Appeals, etc., etc.

ASSIGNMENTS, POWERS OF ATTORNEY, AND LETTERS OF ADVISE CAREFULLY PREPARED.

ENGRAVINGS FINELY EXECUTED.

COPIES OF PATENT PAPERS,

Issued by the United States or Foreign Countries, procured in the shortest time possible.

New Mining Advertisements.

Chilpaneca Mining Company—District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-third day of March, 1888, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Felt, E. G.	65	10	\$5 00
Mosheimer, Jos.	55	25	125 00
Mosheimer, Jos.	57	26	130 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1888, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at their salesroom, No. 310 Montgomery street, San Francisco, Cal., on Monday, the eleventh day of May, 1888, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN F. LONSE, Secretary.

Office, 318 California street, up-stairs, San Francisco. a25

Stockholders' Meeting.—Notice is hereby given, that a Meeting of the Stockholders of the Globe Gold and Silver Mining Company, for the election of Trustees and the transaction of other business, will be held at their office, corner Union and Montgomery streets, San Francisco, Cal., on WEDNESDAY, the twentieth day of May, 1888, at 7 o'clock P. M. By order of the President.

J. WINCHESTER, President.

V. B. Post, Secretary.

Lyon Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice is hereby given, that a meeting of the Board of Trustees of said Company, held on the twenty-first day of April, 1888, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of May, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of June, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. SUFFINGTON, Secretary.

Office, Room 37, New Merchants' Exchange, California street, San Francisco. apr25

Mining Notices—Continued.

Black Ledge Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1888, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, California.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.

Office, 223 Clay street, San Francisco, Cal. mar28

Chalk Mountain Blue Gravel Company.—Location of Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1888, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twelfth day of May, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixteenth day of May, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. SUFFINGTON, Secretary.

Office, Room 37 New Merchants' Exchange, California street, San Francisco. mar21

Honest Miner Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1888, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.

Office, No. 223 Clay street, San Francisco. mar28

Jo. Lane Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of March, 1888, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 223 Clay street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the first day of May, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the eighteenth day of May, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

D. H. CROWE, Secretary.

Office, 223 Clay street, San Francisco, Cal. mar28

La Blanca Gold and Silver Mining Company, District of Ures, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1888, an assessment of two dollars and fifty cents per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 312 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the first day of April, 1888, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the sixteenth day of May, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. GOLDMAN, Secretary.

Office, No. 312 Front street, San Francisco, Cal. mar28

Notice.—The Annual Meeting of the Stockholders of the NEWTON COPPER MINING COMPANY, for the election of Trustees, and the transaction of other important business, will be held at the office of the Company, 305 Front street, San Francisco, on WEDNESDAY, the thirteenth day of May, 1888, at 3 o'clock P. M.

ROBERT B. RANLETT, Secretary.

April 18, 1888. apl8

Nuestra Senora de Guadalupe Silver Mining Company, Location of Work: Tayoltita, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1888, an assessment (No. 31) of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, E. J. Pfeiffer, at his office, No. 210 Post street, or to the Treasurer, A. H. H. ZIMMANN, at his office, No. 637 Washington street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-eighth day of April, 1888, shall be deemed delinquent and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the nineteenth day of May, 1888, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

E. J. PFEIFFER, Secretary.

Office, No. 210 Post street, San Francisco. apr

OLNEY & Co., Anchormen and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. n10

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY,
1st San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Works Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

San Francisco, Aug. 29, 1867.

Pacific Iron Works,
9th St.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

-BY-

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3rd St. SAN FRANCISCO.BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,

Agents for the Pacific Coast.

NOTICE TO MERCHANTS
—AND—
MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working, as goods require no slinging or lashing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,

By JOSEPH MOORE, President.

JOSEPH MOORE.

HUNGERFORD'S
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

MORRIS HUNGERFORD.

A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco.

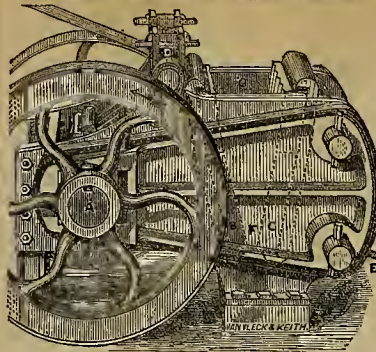
Notice to Miners,
Well-Borers and Water Companies.

MR. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for this branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi steels, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,

8th St. Store, No. 126 Clay street, below Davis.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, \$600.
No. 2.—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour, price, \$850.
No. 3.—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour, price, \$1,200.

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C represents the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, B, moves the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Napa county, Lake District, Nevada county, and can be seen in operation at the Rawhide Ranch Mining Company's Mill, which is the following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County:

JAMES BRODIE, Esq., San Francisco.—My Dear Sir: I give you pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations, and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements, or desirous of receiving letters of license for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866. JAMES BRODIE, Fulton Foundry, or CHARLES RADCLIFF, Express Building, 402 Montgomery street, San Francisco.

12v13tf

C. F. TRAVIS.

Manufacturer of

FRENCH

MILL-STONES,

AND

PORTABLE

MILLS.

—

Agent for

Dufour & Co's

Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Fellenbaum's Patent Balance of which is Sole Proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS,
109 Mission street, San Francisco.

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Elsen Bros, Pioneer Mills; Martin Steen, National Mills; Horace Bros, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,

Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.

319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco.

PACIFIC

FILE, REAPER AND MOWER SECTION
Manufactory,

No. 53 Beale St., bet. Market and Mission,

SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reapers and Mowers Scientifically manufactured. The only establishment on the Coast.

First premium awarded at the State Fair, 1867.

DURNING & KENNEY, Proprietors.

IMPORTANT INVENTION.

The subscriber would like to sell the

PATENT RIGHT

—OF A—

Swivel Shackle Block.

It is perfect in its operation, simple in its construction, and the best article ever invented, as the ropes cannot possibly get twisted.

For further particulars, address

JAMES V. ROCHE,

San Francisco.

A FULL ASSORTMENT OF

TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Mathuath Firearms Company.)

—ALSO—

Steam Gauges, a general assortment of

Hardware, Cutlery, and

MECHANICS' TOOLS,

By CHAS. OTTO & CO.,

312 Bush street, San Francisco.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clerc & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and Patterns of every description. Jigs, Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regulated by the style required.

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice.

H. T. HOLMES.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,

etc., executed in the best manner.

12v16tf No. 625 Mission street, near Second.

Wright's Picks for Sale.

THIRTY-FIVE DOZEN FLAT EYE SURFACE PICKS, with or without strop and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other descriptions of PICKS for sale at REDUCED PRICES. Give me a call at 231 Fremont street, San Francisco.

3v16-3m

JOHN WRIGHT.

A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by

CHAS OTTO & CO.,

312 Bush street.



A SAFE,

CERTAIN,

AND

Speedy Cure

FOR

NEURALGIA,

AND ALL

NERVOUS

DISEASES.

—

Its Effects are

Magical.

It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can ALWAYS be used with

PERFECT SAFETY.

It has long been in constant use by many our most

EMINENT PHYSICIANS,

who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	48 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by

TURNER & CO.,

Sole Proprietors,

9v16-6m 120 Tremont street, Boston, Mass.

STOCK CERTIFICATES,
STOCK TRANSFER JOURNALS,
STOCK LEDGERS,

ASSESSMENT RECEIPTS,

And all other Blanks, Blank Books, etc., required by Mining and other Corporations, kept on hand or printed to order on short notice, at moderate prices, at the office of the Mining and Scientific Press.

CONSTANT GALVANIC CURRENT.—John T.

Sprague gives the following in a late number of the *Chemical News*: The bichromate of potash battery furnishes a current of great force; and its simplicity, economy, and convenience would make it preferable to the double fluid batteries, but for its want of constancy when a current of large quantity is required. Experimenting with it lately, I became satisfied of the cause of this defect. Although there may be a large reservoir of liquid, only the stratum between the plates is active,—and as no gas is being given off there is no circulation; this soon becomes exhausted, and as it is renewed merely by diffusion, can only maintain a current equivalent to the fresh supply of liquid thus obtained. I therefore used a thin beaker as the containing vessel, and placed it over a Bunsen's burner capable of maintaining a moderate circulation of the liquid; and as I expected, the battery now gave its fullest force with absolute constancy until the complete exhaustion of the exciting fluid. Mechanical stirring of the liquid, or motion of the plates, will produce a similar result; and thus by any of the various modes which may be employed, this battery can be made to yield a current more powerful than any other known form, without giving off any noxious gases, and as absolutely constant as can be desired.

NEW GALVANIC BATTERIES.—M. Balsamo

has presented to the French Academy a battery, both elements of which consist of iron, one being immersed in a solution of chloride of calcium, the other in dilute sulphuric acid, the two solutions being separated by a porous cell. The iron in the sulphuric acid acts as the positive element, and the other as negative. A constant and quite intense current is obtained by this arrangement. Another battery, termed an "electric buoy," now being experimented upon at Cherbourg, consists of a zinc plate and a cylinder of carbon, attached to a cross-piece of wood, having sea-water as an exciting liquid. Still another variety is that of M. Miergue, of Bonfark, consisting of a cylindrical cell of porous carbon, containing nitric acid, and an exterior cylinder of amalgamated zinc in a cell full of water.

ANOTTA.—Anotta is the coloring matter from a plant which grows in the West Indies, with deep green leaves, and clusters of purplish flowers, succeeded by bristly seed-pods, which are covered with a soft, sticky rind of a bright red color. It is the extract of this rind that forms the anotta of commerce. The pods are gathered, bruised, mixed with water, left for several weeks, and then passed through sieves. The more solid portion is boiled to a paste, and dried in the shade.

The coloring matter is slightly soluble in water, giving a yellow color; much more in alcohol with orange yellow; and still more in ether with a red color. Caustic alkali extracts the color of a dark orange when strong, and acids precipitate it again of an orange yellow. Oil of vitriol colors anotta first blue, then green, and lastly violet. Cold nitric acid poured over it produces no change. It is sometimes used to color butter and cheese, the coloring matter being diffused in the milk previous to the manufacture.

When anotta is used as a dye it is mixed with alkali; it is mostly used for silks; when employed for calico-printing it is generally mixed with potash or ammonia and starch. It has been also employed for cotton velvet, with one part of quicklime, one of potash, and two of soda.

THERMOMETERS.—The three thermometrical

scales which are most in use are the Fahrenheit, the Reaumur and the Centigrade. The difference between them is in the graduation of the interval between the freezing and the boiling point of water. In Fahrenheit's this is divided into 180 parts; in Reaumur's into 80, and in the Centigrade into 100. According to Reaumur, water freezes at 0° and boils at 80°; according to Centigrade, it freezes at 0° and boils at 100°; according to Fahrenheit, it freezes at 32° and boils at 212°. In England, Holland and the United States the thermometer most generally used is Fahrenheit's. Reaumur's scale is used in Germany, and the Centigrade in France, Sweden and some other parts of Europe. The scale of the Centigrade is by far the simplest and most rational method of graduation.

WOODEN SEATS are to take the place of the cushions in the street cars of New York. It has been found impossible to cleanse the latter after they have once become filthy.

(MINING SUMMARY—Continued from Page 263.)

pounds, and of the assayed value of \$31,790.98.

During the past week, Wells, Fargo & Co. shipped 8,443 pounds of assayed bullion, valued at \$288,779.78.

Trespass, April 18th: Work will shortly be resumed upon the mines in Palmira district, which have been idle for several months on account of the severity of the weather.

The main shaft of the Kentuck mine is now down 12 ft. below the sump, and the work of sinking is being prosecuted night and day.

OREGON.

The Oro Dell (Union county) correspondent of the *Dalles Mountaineer* of April 4th, says: Travelers for Shasta still throng the road. A good many are seeking their fortune by working on the ditch, at \$4 a day in water scrip.

We learn that a company propose bringing in a ditch, upon some claims about five miles from here, up the old Foxroad. Gold has been known to exist in some flats up there, and this company propose trying to see if it is there in paying quantities.

The company have got to work at Grand Ronde diggings, with a prospect of a lively camp this season.

Rates of Postage on Printed Matter to Europe and Asia.

The Post Office Department has made arrangements by which a number of European and Asiatic countries, hitherto beyond the reach of our mail communication except by letter, are brought within the range of delivery of all, or nearly all, United States mail matter. It is a singular fact, unknown probably to most persons who have not occasion to learn it by unpleasant experience, that there was a considerable region in the civilized world where an American traveler might not receive a newspaper directly from home.

Under the arrangement now completed, prepayment of postage (sometimes at high rates), is made necessary in all cases. The following official statement gives a full list of the countries—with some of which there has been regular communication—that are now included in the delivery by way of Hamburg and Bremen:

Rates of postage on newspapers and other printed matter (periodicals, etc.) sent from the United States to countries in Europe and Asia, by Bremen or Hamburg mail—prepayment compulsory:

NEWSPAPERS—MARKED AS FOLLOWS:

Bremen, by Bremen mail—2 cents each.
Hamburg, by Hamburg mail—2 cents each.
Prussia, Austria and German States, by Bremen and Hamburg mail—3 cents each.

Lauenburg, by Bremen mail—3 cents each and 1 cent per 1½ ounce.

Schleswig-Holstein and Denmark, by Bremen or Hamburg mail—3 cents each and 1 cent per 1½ ounce.

Sweden, by Bremen or Hamburg—3 cents each, and 1½ cent per 1½ ounce.

Norway, by Bremen or Hamburg—3 cents each, and 3½ cents per 1½ ounce.

Holland, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Russia, by Bremen or Hamburg—3 cents each, and 1 cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—4 cents each.

Italy, by Bremen or Hamburg—5 cents each.

Turkey, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Greece, by Bremen or Hamburg—3 cents each, and 5½ cents per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—3 cents each, and 2½ cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail by way of Marseilles—3 cents each, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen and Hamburg mails, via Trieste—3 cents each, and 2 cents per 1½ ounce.

PERIODICALS, ETC.

Bremen, by Bremen mail—1 cent per ounce.

Hamburg, by Hamburg mail—1 cent per ounce.

Prussia, Austria and German States, by Bremen or Hamburg—1½ cent per ounce.

Lauenburg, by Bremen mail—1½ cent per ounce, and 1½ cent per 1½ ounce.

Schleswig-Holstein and Denmark, by Bremen or Hamburg—1½ cent per ounce and 1½ cent per 1½ ounce.

Sweden, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.

Norway, by Bremen or Hamburg—1½ cent per ounce, and 4 cents per 1½ ounce.

Holland, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Russia, by Bremen or Hamburg—1½ cent per ounce, and 1½ cent per 1½ ounce.

Switzerland, by Bremen or Hamburg—1½ cent per ounce, and 1 cent per 1½ ounce.

Italy, by Bremen or Hamburg—1½ cent per ounce, and 2 cents per 1½ ounce.

Turkey, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.

Greece, by Bremen or Hamburg—1½ cent per ounce, and 5½ cents per 1½ ounce.

Gibraltar, Spain and Portugal, by Bremen or Hamburg—1½ cent per ounce, and 2½ cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail by way of Marseilles—1½ cent per ounce, and 9 cents per 1½ ounce.

Austria, India and China, by Bremen or Hamburg mail, by way of Trieste—6½ cents per ounce, and 2 cents per 1½ ounce.

These charges are in each case in full to destination, combining rates between the United States and Bremen or Hamburg, and the rate beyond Bremen and Hamburg to points of delivery.

Our Patent Agency.

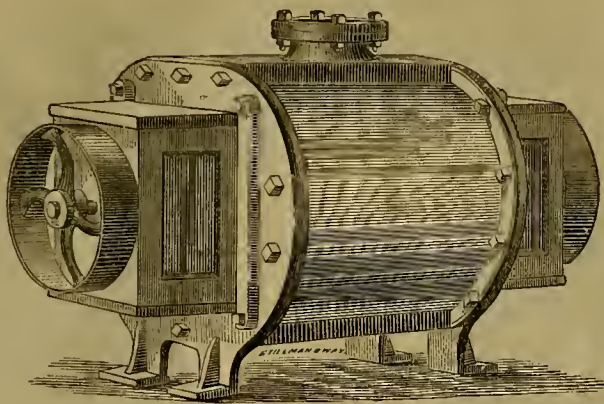
The PATENT AGENCY OF THE MINING AND SCIENTIFIC PRESS has been signalized with remarkable success during the past two years. The importance to the inventive genius of this coast of a thorough and reliable agency for the solicitation of LETTERS PATENT from the United States and foreign Governments cannot be over-rated, and the Proprietors of the Press, feeling the responsibility which rests upon them, and the reward which must follow the faithful performance of their trusts, will take care to afford inventors every advantage to be secured to them through a competent and reliable agency upon this coast.

REMITTANCE YOUR LETTERS containing money addressed to us, or we will not be responsible. Remittances by Express must be in packages, prepaid. When practicable, it is best to remit by draft, or order, on some San Francisco bank or firm.

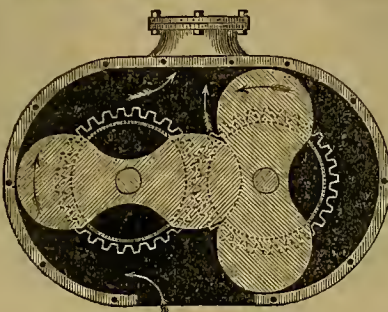
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LESS POWER

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CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

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NOTE.—We would specially call the attention of MILL owners and Engineers to our superior PARAFFINE OIL, which we manufacture from the California Petroleum. This Oil will not gum. Machinery thoroughly cleaned and lubricated with it will not heat, and after remaining at rest, can be started without cleaning off.

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THIS BED, NOW SO POPULAR IN THE EASTERN and Western States, was patented August, 1856. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines elegance with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 29 Post street, San Francisco. 8v15-3m

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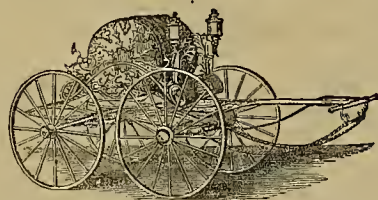
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"The Excellent"

Will not repair broken limbs nor leaky roofs; but it will quiet the nervous and brace up the weak. It will give more comfort to those suffering from dyspepsia or indigestion than any preparation you ever tasted or heard of. The first physicians use it, and it is made by

BARRY & PATTEN,

413 Montgomery street, San Francisco.

APPRECIATES IT.—One of the managing proprietors of a quartz mine in Yuba County, in directing us to send the **MINING AND SCIENTIFIC PRESS** to his Superintendent, adds: It will pay mining companies to require all their Superintendents to read your paper, to the end that they may be convinced that improvements can and must be made, in order to enable us to fully develop our great mineral resources."

AN IMPROVEMENT ALREADY.—Albert R. Davis has patented the employment of glycerine either with or without water, for saturating the wooden wall hangings which we have noticed as having been recently patented,—and thereby rendering them soft and plastic, and free from the danger of "checking" or splitting, either before or after they are placed upon the wall.

MORE OF HENDY'S CONCENTRATORS.—Four of these machines have just been shipped to the Joe Walker mine, near Havilah. The Superintendent of the mine, Mr. Belden, is the man who introduced these concentrators in Grass Valley, and is fully acquainted with their capabilities.

IMPROVEMENT IN MINE-CAGES.—A new cage has been patented by an Englishman, the peculiarity of which consists in the use of iron or steel tubing instead of flat bars. Both lightness and strength are secured by this means.

PLATINUM WARE.—The especial attention of dealers and others is called to the advertisement of H. M. Raynor, of New York, an extensive dealer in platinum ware, and purchaser of platinum scrap and ore.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment ourselves, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1863. 10v16 3m

MEDICAL AUTHORITIES have announced that not less than one-fifth of the entire population of the United States are afflicted with Neuralgia in some form. Surely the man who can safely remove such a vast aggregate of pain is a great public benefactor. Such is Dr. Turner, of Boston, in Massachusetts. His "Universal Neuralgia Pill" is pronounced on all hands, to be an entirely harmless and perfectly certain remedy for this most torturing of all known diseases. See advertisement in another column.

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Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and expensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v6-1y16p

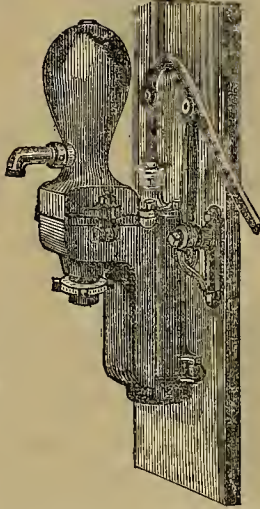
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Six-Inch Mining Pump.

These Pumps combine all the advantages of the common Lift and the Double-Acting Suction and Force Pumps, and are equally fitted for all—Household, Farm, Mill, Manufactory, Brewery, Ship, Railway, Mining, and other purposes, and are especially recommended on account of their lightness, compactness, durability, cheapness, and the facility with which they can be placed in any position.

They are adapted for Hand, Steam, Horse, Water, or Wind Power. They are more durable in all their parts than any other Pumps of the same power.

Four-Inch Deep-Well Pump.



The Valves are of the simplest construction, and can be readily taken out by loosening two common nuts. They are not liable to get out of order, and can at all times be removed without the aid of a skillful mechanic.

The lower valves of these Pumps work upon inclined seats, which prevents sand or other matter that the Pumps may take up, from remaining under the valves, or stopping the flow of water.

These Pumps are worked with less friction, and consequently require less power than any other Double-Acting Pumps of equal capacity.

All sizes, from 2-inch to 8-inch Cylinder, manufactured by the Pacific Iron Works, GODDARD LOCKE & MONTAGUE, 112 and 114 Battery Street, San Francisco.

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SAVING PRECIOUS METALS,

All progressive information, in fact, transpiring with the times—which cannot be obtained from books.

The MINING AND SCIENTIFIC PRESS is now in its SIXTEENTH VOLUME, and enjoys a large circulation. It received the following hearty endorsement of the California Miners' State Convention, held at Sacramento, January 17th, 1866:

RESOLVED, That we regard a mining paper or journal of great importance to the mining interests of California, and recommend the MINING AND SCIENTIFIC PRESS, of San Francisco, to the consideration and support of the miners of the Pacific coast.

Terms of Subscription.—One year, \$5; six months, \$3—in advance. Send for sample copies. Remittances may be made by mail at our risk, if parties sending will register their letters, or send money order.

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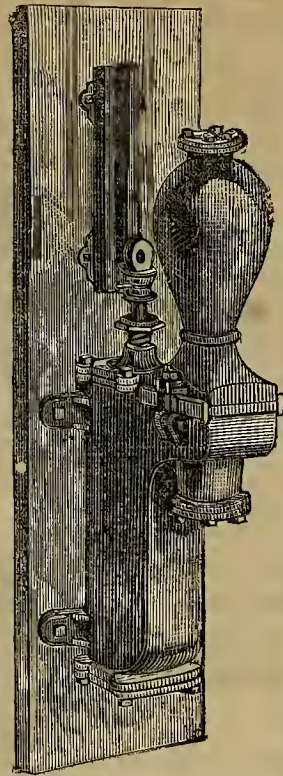
SPECIMEN NUMBERS of the Press and Patent Circulars, sent free.

DEWEY & CO.,
San Francisco

Jan. 1st, 1863.

National Mineral Land Law, Instructions.
Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.



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SULPHURETS;

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How Concentrated;

And How Worked;

With a Chapter on the

BLOW-PIPE ASSAY OF MINERALS.

By WM. BARSTOW, M. D.

Published by A. Roman & Co., San Francisco.

For sale at this Office.—Price, One Dollar.

With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 21v15tf

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BRASS AND BELL FOUNDER.

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Babbitt Metal Castings:
CHURCH and STEAMBOAT

BELLS,

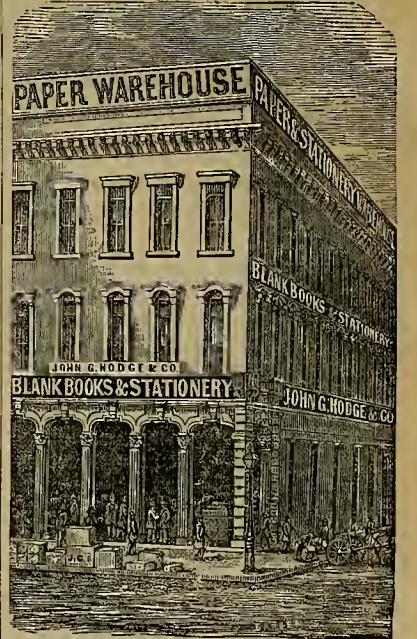
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FIRE ENGINES, FORCE AND LIFT PUMPS,

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HYDRAULIC PIPES and NOZZLES
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SAN FRANCISCO, SATURDAY, MAY 2, 1868.

VOLUME XVI.
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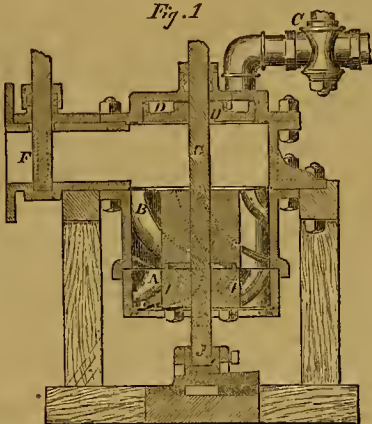
Lind's Improved Turbine Water Wheel—Flue.
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San Francisco Weekly Stock Circular.
Notices to Correspondents.
New Incorporations—List of Officers.
San Francisco Market Rates.
San Francisco Mining Shareholders' Directory.
San Francisco Metal Market.

Lind's Improved Turbine Water Wheel.

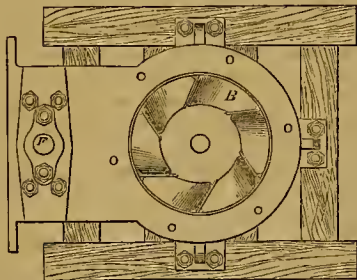
The object of this invention is to provide an improvement in turbine water wheels, to more perfectly utilize a very small stream of water, having a high head. This invention is an improvement on a former patent, obtained by the same inventor, and for which improvement an application for a patent is now pending through the agency connected with this office.

Fig. 1



The chief improvement in this invention consists in an ingenious method of so balancing the pressure of the water upon the wheel that the weight is almost entirely taken off the step, thereby avoiding a great difficulty heretofore encountered in turbine wheels, in the large amount of friction incurred and the consequent wearing of the step. This is accomplished by the construction of a flange, H, in Fig. 1, which is keyed to the driving-shaft, G, which revolves with the shaft in a water tight joint within the cover of the water chamber, F.

Fig. 2



In the wheel as heretofore made, the water is admitted at F, and passes down over the guide buckets, B, bearing down upon the step J, with a large portion of the weight due to the column of water employed in driving the wheel. Now by attaching the flange H to the driving-shaft, as above described, it is evident that the bearing upon the under side of this flange and upon the step J, can be made to perfectly balance each other, thus relieving the pressure upon the step, and consequently avoiding the friction due to such bearing and the consequent wear.

In order to more perfectly effect this arrangement, a chamber D, D, is formed over

the flange which takes up the small amount of leakage which must unavoidably find its way through the joint between the flange and water-chamber cover; a pipe with a stop-cock C, carries the water off and regulates the pressure so that the hub of the wheel may not be forced too strongly against the hub of the guide buckets.

Fig. 2 shows a top view of the guide buckets, a section of which is shown in Fig. 1. These guide-buckets are so arranged, by their peculiar form, as to cause the water to act in a more efficient manner than when passing through ordinary spiral or vertical buckets.

The passages I, I, Fig. 1, are made through the hub, to relieve the wheel from the pressure of the water which may accumulate above it.

A series of plates not shown in the illustrations, are introduced around the bottom of the wheel and corresponding to the curve of the buckets, by which the discharge opening may be more or less constructed to correspond to the varying amount of water which can be introduced upon the wheel.

We understand that the inventor is meeting with good success in introducing this improvement, and that it is giving the fullest satisfaction wherever it has been tried.

CHANGES IN THE GULF STREAM.—We had occasion a few weeks since, to notice an important change reported in the "set" of the Gulf Stream, between the island of Cuba and the peninsula of Florida, by which vessels passing through the Straits of Florida were drifted much nearer to the Florida Keys than formerly. This change was attributed to the elevation of the ocean bed in the channels between Hayti and Cuba, and between Hayti and Porto-Rico, during the late terrible earthquake at St. Thomas. It is now stated, on the authority of Capt. Sherburne, of the ship Gamecock, which recently arrived at New York, that the inner edge of the Gulf Stream, in latitude 36° 20', (about the latitude of Norfolk) is now at least 100 miles further east than formerly. Such a deviation in the course of this stream would indicate that it must strike the western coast of Europe at a much lower latitude than heretofore. The climatic effect of the impingement of the waters of this immense ocean river of warm water, upon the British Isles and the north-western coast of Europe is well known; and the consequence of such a change in its course may be readily imagined. If the observations of Capt. Sherburne should be confirmed by more minute surveys, the subject must afford a theme for a most interesting discussion among the learned. It has been stated that if the direction of this stream could be so changed as to cause its waters to strike the European coast at the Straits of Gibraltar, the British Islands and the lands bordering on the North German ocean would be too cold for anything like successful cultivation.

A DREDGER is employed deepening the moorings at the side of North Point dock. No vessels there at present.

Repeal of the Tax on Manufactures.

One of the most important acts of legislation accomplished in Congress during its present session, is the passage of the Bill removing the Federal tax of five per cent. from the great bulk of manufactured articles; and leaving subject to taxation only a few, such as tobacco, spirits, sugars, etc., which can well afford to sustain it. The new law goes into operation on the first of May, and its beneficial effects will soon begin to manifest themselves all over the country; but nowhere more sensibly than in California, where our incipient efforts at manufacturing industry have been well nigh taxed out of existence. It is well known to all who have made the matter a subject of special inquiry, that some of the manufacturing enterprises on this coast, have paid into the National treasury nearly every dollar which they have earned, over the cost of living, ever since this five per cent. tax has been in force. In many cases manufactured articles have been taxed and retaxed at almost every stage of their progress, and to such an extent as to utterly preclude all probability of realizing a profit from such manufactures, even while the public was most intolerably burdened by the increase of price which such a taxation rendered indispensable.

It is estimated that as many as 8,000 articles are exempted by the new law, the most important of which, as affecting this coast, are as follows:—Bullion, books, boilers, boots and shoes, bags, brass work, candles, chemicals, carriages, cloth, clothing, furniture, powder, glue, glass, hats and caps, iron products, lead, leather, lard and linseed oil, masts, spars, cordage, pickles, printed matter, paints, photographs, paper, pottery, quicksilver, turpentine, lime, water craft, wool, soap, salt, sails, steam engines, etc., etc.

The repeal of the tax on the various articles which enter into the business of ship-building, it is thought will do much towards reviving this important branch of our domestic industry. It is to be hoped that since Congress has seen the necessity of such an important reduction in the burden of national taxation, as bearing upon the middle classes, it will soon be found willing to go one step further, and exempt all incomes from taxation which do not exceed the sum of \$2,000. The derangements of business and depression of currency, consequent upon the war, has so increased the cost of living in this country, that but few persons with large families, and resident in cities or in populous neighborhoods, can sustain themselves in anything like a comfortable manner on \$2,000 a year in currency. To such the income tax is a burden too grievous to be borne, and the revenue now derived therefrom should be collected from the property of the country. But the corner has been fairly turned, and let us hope that the country is now about to enter upon a road which will lead to prosperity and repose.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

THE EUREKA PROCESS.—G. H. Gray & Co., of this city, have recently purchased the right to use the Eureka or Ryerson process, with the "ball grinders," in their mill at Gold Valley, Sierra county. This process, it will be recollected, is the one which has been for some time in use on the Fremont-Mariposa Estate, working rock from the celebrated Josephine mine, and reducing it to an impalpable powder by means of small, half-ounce iron balls, working in a revolving barrel; the amalgamation being effected by means of Ryerson's superheated steam apparatus. Both of these operations have already been fully described in the columns of the PRESS. The Messrs. Gray recently visited the mill in Mariposa, and spent a sufficient length of time in examining the practical working of the process to satisfy themselves that it is all that is claimed, in point of efficiency and economy. The total cost of working rock by this process, there—using a very inefficient stamp-mill for the preliminary crushing of the rock, and wood for steam at a cost of \$6 a cord—is said to be a fraction less than \$10 per ton. The Messrs. Gray hope to be able to put in machinery for working this process at a cost but little, if any, exceeding the ordinary stamp and pan process.

MILL-STONES FOR THE INTERIOR.—We learn from Mr. C. F. Travis, manufacturer of French Barr Mill-Stones, 109, Mission street, that an order has been received for four large mill-stones, one four feet in diameter, and three measuring four and one half feet, for the new Merchant mill, now being put up at Benicia, by A. L. Sherman & Co. The Tehama mill of four run of stones in Tehama County, lately burned down, and now being rebuilt, is also to be supplied from Mr. Travis' establishment in this city.

THE LABOR EXCHANGE.—This institution is now fairly under way. The office was opened on Monday last at 319 Battery street. An opportunity is here furnished for the coming together of employers and those seeking for employment. Let all who wish laborers of any kind avail themselves of the opportunity; and thereby relieve distress while putting money in their own purses.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

Formation, Distribution and Age of Igneous Rocks.

EDITORS MINING AND SCIENTIFIC PRESS. I see that "Criticus" retires from the field, because he has neither time nor disposition to devote to a discussion which he fears might be endless. He has made quite a number of assertions which he would have us believe; but no effort to substantiate even one of them. If that gentleman is actuated by proper motives, and an honest and laudable desire to contribute his mite to the advancing science of our day, he has not made it apparent. Notwithstanding he feels so well assured in asserting that my paper—"Formation, Distribution and Age of Igneous Rocks"—contains "errors strangely numerous, and of a character the veriest snatterer should be able to detect," I question his ability to point out one of them. So far as having studied the natural sciences to "so little purpose" in the past, is concerned, I acknowledge it, and at times feel painfully sensible of it.

As "Criticus" seems to be a follower of Dana, I shall proceed to partially review the theory of the sedimentary origin of metallic veins, and in doing so, shall make some brief quotations from writers who favor or are committed to said theory; nor do I expect it will be by any means an endless task to show it to be so inconsistent and completely at variance with facts, that no one will hereafter be found to do it honor. The following extracts will serve to show what are the opinions of representative men:

Prof. Blake, in a recent Paris letter, which appeared in the MINING AND SCIENTIFIC PRESS, says: "It is generally known, although it may not be a familiar fact to some of your readers, that at Lake Superior, large lumps of pure silver are found in the midst of masses of copper; the two metals being as perfectly united as if soldered; yet there is no mingling or alloy at the junction. It is now generally conceded, that these metals were deposited from solutions under the influence of electrical currents."

Prof. Silliman, in speaking of what he terms the "Mother vein" of Amador and Tuolumne counties, "thought the inference unavoidable, that the enclosing rocks in each case exercised an important influence on the mineral contents of the vein." I am also credibly informed that he stated in conversation within the past year, that it was his opinion that the nuggets of gold found in placers, were aggregations due to electro-chemical action.

Prof. Dana says, "The quartz veins could not have been filled from below, by injection—a view not now accepted for the generality of mineral veins. They must have been filled either laterally or from above. In all such conditions of continued heat beneath an ocean, the hot water would dissolve silica freely within the rocks, or from them (as happen in the Geysers in Iceland and elsewhere), so that the region would become one of hot silicious solutions, permeating and overlying the upheaving strata. This silica would be free to consolidate or metamorphose the strata, and to fill up all rents or openings, whether they are no thicker than a sheet of paper, or rods in width; the waters would work laterally into the fissures, as this would be the tendency of the internal flow or movement, and they would carry mineral materials of various kinds with them; besides the superficial waters might deposit what mineral matter they contained along with the silica; and at the same time vapors might arise from below along the line of rents, and be still a third source of metallic or mineral material. Between these methods appears

to lie the process by which the gold was introduced into the quartz veins, and it remains for further research to ascertain the particular facts in the case. It was a period for each gold region, of long continued beat (occupying probably a prolonged age), and also of vast uplifting and disturbance of the beds; for the beds are tilted at various angles, and the veins show where were the fractures of the layers, or the separations and gapings of the tortured strata."

To take a common sense view of the matter, it does seem extraordinary that fissures found in the bed of an ocean, subject to such long continued and violent agitation, instead of being filled with ooze or other sedimentary matter, which always exists in such localities, should be so exactly filled with metal-bearing quartz.

Such a theory of the origin of metallic veins, as my friend "Criticus" has it, is "elaborate," very. Whenever man has sprung too rapidly to a conclusion, he has alighted upon error, and has had to retrace his steps; and Prof. Dana would have done much better to have confined himself to the relation of simple and well ascertained truths, than to have made a work, otherwise meritorious, the vehicle of a theory based upon such questionable premises and involving such absurdities.

Now gold, although it is so widely distributed, and its ores are very numerous, has but one solvent in nature, viz., chlorine. I find it stated in that "small but reliable" text book designed for the use of common schools, "Comstock's Chemistry," that protosulphate of iron precipitates metallic gold from its solution, and potash and soda give a yellow precipitate of gold. Sulphate of iron is the product, to a greater or less extent, of the decomposition of all rocks and soils containing gold, and potash and soda form a large percentage of most rocks. Then the free electricity with which the earth is charged, is confined entirely to the surface, as is proven by the late attempt to establish telegraphic communication with the Pewabic mine, Lake Superior, when the circuit was broken at the short distance of thirty feet. A single wire was used, and although it worked well enough upon the surface, the operator tried numberless experiments, and it could not be made to "give one little sign of life." In ordinary telegraphy with a single wire, the circuit is effected by displacement, because the ocean of free electricity which bathes the earth's surface is so near an equilibrium as to present a medium for displacement. There being no medium for displacement between the surface and interior, there consequently can be no electrical currents. I am informed that when the circuit was completed with insulated wire, so as to present a medium that was independent of all outside electrical disturbance, the difficulty was overcome.

Now mark the conditions presented by this theory of the sedimentary deposition of quartz veins and their contents. It supposes that the tetrachloride of gold is a product of nature, to be held in solution in contact with the reagents that would vitiate the whole process,—such as sulphate of iron, potash or soda,—and through a lengthened period of time to be carried to open fissures by a filtering process, to be deposited in veins and aggregated in masses by electro-chemical action, where no currents of electricity exist! The reagents,—potash, soda, and sulphate of iron,—are so abundant and prevalent as to render the existence of the tetrachloride of gold, as a product of nature, highly improbable, if not impossible; under any circumstances.

Whatever may be the difference of opinion among the advocates of this peculiar theory (it is doubtful if any of them have any clear ideas upon the subject) as to the particular mode of aggregation of quartz veins and their contents, they all assume that the material of which they are composed originally existed in the enclosing or country rock,—which assumption amounts to a tacit admission of an eruptive era of the metals, as will appear from the following considerations: When the crust of the earth becomes sufficiently cooled for water to rest upon its surface, it must appear evident that the only source from which rock matter could have been derived, must have been from beneath the then existing crust. Some geologists estimate the stratified rocks, in some localities, to be as much as fifteen miles in thickness, the greater part of which must have been brought to the surface by volcanic action, either eruptive or intrusive, as no mineral can exist in the atmosphere in the gaseous form at so low a temperature as 212° Fah.

(To be continued.)

[Editorial Correspondence.]

The Sheffield Scientific School of Yale College.

During a brief stop at New Haven, (Ct.) we enjoyed much satisfaction in visiting this new and notable institution. By the kindness of Prof. Brush, we were shown through the mining and metallurgical museum, comprising a large and varied collection of veinstones, ores, valuable non-metallic minerals, building stones, fossil fuel, etc., numbering several thousand specimens, systematically arranged so as to afford the observer ready and practical information. Groups are shown, illustrating the dressing of ores, and various metallurgical processes throughout, with models and diagrams of mines and works. In addition to this, Prof. Brush has a private collection of over 5,000 specimens, which he has been more than twenty years in accumulating and arranging. This collection is designed for the special purpose of illustrating the characters of the various mineral species and varieties as fully as possible. Many of these specimens are very rare, and their beauty utterly indescribable. The use of this collection is likewise extended to students and friends, with a modest air of delightful generosity.

To Prof. Wm. H. Brewer (formerly of the California State Geological Survey) we are indebted for information concerning the School, its operation and success. We have only time to say, however, and that in a general way, that it is progressing most successfully and satisfactorily. Where we see so many combined advantages, so easily attainable as those offered in this School, it seems a wonder that more of our young men are not availing themselves of its privileges.

It is plain to us that our Government could not make a more profitable investment than by gratuitously assisting at least a thousand young men to attend such an institution. The time must certainly come when mining institutions will be liberally sustained by Congress.

The ability and unselfish devotion of the professors of this School (several of whom we know have refused better financial engagements,) entitles them to great rewards, which, we trust, will eventually accrue to them. The founder of the School, Mr. Joseph Sheffield, has donated in all over \$160,000 to this branch of Yale College. The elegant building itself was constructed under his supervision, and upon a portion of his own homestead, adjoining the College Square; and with modest but vigilant eye, he still watches over its interests and rejoices in its advancement.

Special students, "pursuing a higher or a partial course," are admitted. Connected with this class, we had the pleasure of meeting a most estimable friend,—Rev. John Dickinson, late of the "University of the Pacific," at Santa Clara. Mr. Dickinson is an eloquent speaker, and an enthusiastic student of geological and mineralogical science. He intends returning to California, where we are sure his services as a teacher will be the more highly appreciated for his attainments while absent.

The advantages derivable from this School, over all others in the United States, by its connection with Yale College, and the numerous and able Faculty of that Institution, its extensive Cabinet, Museum, Library, School of Fine Arts and Design, are clearly impressed upon the mind by a personal visit to it.

The officers of the School are as follows: President, Rev. T. D. Woolsey, D. D., LL. D. Professors:—W. A. Norton, M. A., Civil Engineering and Mathematics; James D. Dana, LL. D., Geology and Mineralogy; Benj. Silliman, M. D., General Chemistry; Rev. Chester H. Lyman, M. A., Industrial Mechanics and Physics; William D. Whitney, Ph. D., Modern Languages; George J. Brush, M. A., Mineralogy and Metal-

lurgy; Daniel C. Gilman, M. A., Physical Geography; Samuel W. Johnson, M. A., Analytical and Agricultural Chemistry; Wm. H. Brewer, M. A., Agriculture; Alfred P. Rockwell, M. A., Mining; Daniel C. Eaton, M. A., Botany; Ottniel C. Marsh, M. A., Paleontology; Addison E. Verrill, B. S., Zoölogy. Instructors:—Mark Bailey, M. A., Elocution; Louis Bail, Drawing and Designing; John Avery, M. A., Physics, etc.; James B. Stone, C. E., Mathematics; Beverly S. Burton, Ph. B., Chemistry; C. J. Sheffield, Assaying.

The President and the professors comprise the governing board of the Institution. One hundred and twenty-three students were in attendance in 1867. The object of the Sheffield Scientific School is to provide young men with instruction in the various departments of Mathematical, Physical and Natural Science. By an Act of the Legislature it has been constituted the Connecticut College for the promotion of Agriculture and the Mechanic Arts; and has therefore received the benefits of the Congressional land appropriation for that Commonwealth.

A. T. D.

A "PLANING SAW."—SOMETHING NEW.—Mr. C. N. Brown, inventor, recently showed us, in New York, his improved saw, which cuts and planes boards, and other lumber, at one operation. The saw used at the time was some fifteen inches in diameter. The teeth are all removable, without the use of rivets, are hardened to a chisel temper, and ground, when dull, instead of filed. They are without any "set," but one or more are constructed with planing or cutting edges on each side, which cuts what is usually taken out by the set of the saw. In the machine we noticed that but one planing tooth was used, and yet it made as good a surface, on each side of the lumber, as any we have seen from an ordinary planing machine. The cut was from a stick of green pine. It appears to be a great improvement in cutting up lumber for manufacturing purposes, as well as for sawing from the log; saving machinery, space and handling. Mr. Brown has a very ingenious tool for adjusting and holding the teeth of the saw and grinding them down to uniform size and shape by the use of emery wheels. When this improvement is further advanced our readers may expect more information concerning it.

A. T. D.

VEGETATION IN THE MOON.—Professor Schwabe has recently announced the discovery of what seem to be signs of vegetation in the moon. There are certain dark lines or scratches extending across the slopes of the highest lunar mountains, which have been variously accounted for. Prof. S. claims to have discovered in these lines a greenish color, which is only apparent at certain seasons. He therefore regards them as helts of vegetation.

HORSE-HAIR HATS.—The New York correspondent of the *Bulletin* says: A gentleman of this city has patented a process for making hats of horse-hair, and is now projecting machinery for manufacturing them on a large scale. He claims that he can make a gentleman's hat of the material named, that will not weigh one ounce. Ladies' hats—or whatever they may be called—will weigh a great deal less;—some of them, perhaps, almost nothing at all.

REMARKABLE MINING RELICS.—At different places in East Tennessee, where there are veins of copper, zinc, or lead ore, there are found excavations that must have been made hundreds of years before that section was settled by our people. So very extensive are some of the excavations that to make them now, with all modern facilities, would require an expenditure of thousands of dollars. The rocks seem to have been fractured by heating and throwing water upon them. Some persons suppose these excavations were made by Spaniards, who were in search of precious metals.

Mechanical.

ISHERWOOD DISPOSED OF.—The committee of practical engineers which has been experimenting at Buffalo on the economy of the use of steam expansively, made a report which effectually finishes up the Isherwood humbug. In eight years this officer has spent nearly a million of dollars of the public money in "experimental researches" to prove a stupid theory of his own, which has now been demonstrated to be a fallacy. The *Artisan* describes the experiments of the committee, with the conclusions arrived at; and thus closes its article:—"We should not omit to state that so striking is the economy attainable by using steam expansively, as above demonstrated, that no less than five of the largest propellers on Lake Erie are now having their engines removed in order that they may be replaced by highly expansive engines, the same as above described, and such as Mr. Isherwood says are "rubbish, fit only for the scrap-heap." This fact becomes all the more important (and it is a remarkable proof of the great economy that is attainable in practice by the use of steam expansively) when it is remembered that these changes are being made by men who spend their own money and who earn their living with their vessels;—quite a contrast to our beautifully-polished naval engineers, headed by their doughty chief, who, with both arms in the treasury up to his elbows, preaches doctrines that would consign a civilian engineer to everlasting coventry.

TITANIC STEEL IN ENGLAND.—It may be a matter of interest to some of our readers, and especially to those interested in the project of utilizing the titanic iron sands found along the beach west of this city, to learn that the Titanic Iron and Steel Company of London, projected under the auspices of Mr. Musket, and employing the iron sands of New Zealand, is still in operation, and turning out a very superior article of steel. The company appears to have much to contend with in the prestige and activity of its powerful rivals in Sheffield—the acknowledged seat of the steel trade of the world; still it has thus far held its own, and pays expenses, while the company's steel is growing in favor with all who continue to use it. Some of the largest engineering firms in the north of England, are using this steel, and pronounce it superior in quality, especially for wearing and cutting purposes.

AMERICAN MANUFACTURES IN ENGLAND. The *American Artisan* of March 25th, gives, under the above heading, a communication from a New Yorker, recently returned from England, who while in Birmingham, asked at a machinists' supply store, for "some of the most recently improved articles for use in a small machine-shop." He was informed that they had the very best of all such articles. After being shown a lathe-chuck, a collection of drills, etc.,—all of which were stamped with the American maker's name,—and all of which he declared himself already provided with,—a case of very fine steel standard rules, gages, try-squares, etc., was shown him; with the assurance that they were "the most perfect made, and guaranteed even for standard work." On examination, these too, showed the American stamp. He told the gentlemanly proprietor that he had a set of these also. He was now asked, "Where is your shop?" "In New York." "Then," said the man, "I have nothing new to show you."

IMPROVED BORING MACHINE.—The apparatus which forms the subject of the invention of Mr. H. de la Roche Tolay, of Paris, consists of a continuous rotary piercing-machine. The piercing-machine is composed of a metallic frame, on which is placed a Perret's water-pressure engine, which gives motion to the driving shaft, at one end of which the piercing-tool is placed, and at the other end the piston. The front part of the boring-tool is furnished with Leschot's annular cutter. The perforation is affected by the simple grinding away of the rock to be bored.—*London Mining Journal*, March 7th.

DUTY OF STEAM ENGINES.—Mr. Warington Smyth, in the course of a lecture recently delivered at the Royal School of Mines, made the following remarks as reported in the *Colliery Guardian*: The principal engines in use now-a-days, were those of Bolton and Watt, which had been greatly improved by the Cornish engineers, so that the amount of duty obtained was something quite wonderful. Watt thought he had achieved a great thing when a duty was reached of seventeen millions of lbs. raised one foot by the expenditure of a single bushel of coals; but the labors of Wolfe, Hornblower, and Trevethick, and others, had been so successful that the duty was raised to fifty or sixty millions, and in some extraordinary cases ninety millions of lbs. raised a foot high with one bushel of coals. This was a very important matter, both as to the saving effected in fuel and in the expenditure of working, as the greater the amount of fuel unnecessarily consumed the greater the wear and tear.

In this connection we may add, that the *London Mining Journal* reports the number of Cornish pumping engines running in January last, as 23. They consumed 1,665 tons of coal, and lifted 13.0 million tons of water 10 fms. high. The average duty of the whole is, therefore, 53,200,000 lbs., lifted one foot high, by the consumption of 112 lbs. of coal. In December, the average was 49,500,000 lbs.

LEATHER BELTS AND CAST IRON PULLEYS. The *Journal of the Franklin Institute* gives the particulars of a series of experiments undertaken at the instance of Mr. Robert Briggs. A perfectly new belt, an old one, and one partially used, and in good order, were the subjects of the experiments. The conclusion arrived at was that the adhesion of the old and the partially used belts was much increased in damp weather, and that they were then in their maximum state of efficiency; whereas the new belt seems to have been most efficient when the atmosphere was dry. As regards the tensile strength of belts, it was found that 200 pounds per inch of width is the greatest resistance to tearing that can be expected from ordinary belts.

NOTES FOR MACHINISTS.—E. P. W. sends the following to the *Scientific American*, as things to be remembered by machinists: Never turn a shaft without drilled centers. Never turn the body until the ends are squared to the center and to the length. Never allow a nut and bolt to pass that will not run down properly on each other. Never pass a nut that does not screw down fair on its seat. Never take the last cut on a thin casting, whether in the lathe or planer, without easing off the chuck or clamp that confines it. Never use a tool square across the face to rough-off with. Never attempt to work steel that is harsh from want of proper annealing; better carry it back to the smith and have it annealed properly, then waste time and tools in doing what will be only a poor job. If you can buy good tools cheaper than you can make them, buy them.

IMPROVEMENT IN HOT BLAST FURNACES. An improvement made by Col. Richard Long, of Chillicothe, Ohio, in hot air blasts for furnaces, consists in substituting fire-clay pipes for iron, and supporting the walls with fire brick and iron plates; thus overcoming contraction and expansion,—the pipes being made oval in form (the narrow edge uppermost), thus preventing the accumulation of dust and equalizing the heat. The joints are coupled with the same material, and made perfectly tight. The main points suggested by this invention, are the cheapness and durability of the material used, the ease with which it is renewed or removed, the perfectly tight joints, and the reduction in friction; thus increasing the power of the engine, and consequently the production of iron.—*Pottsville Standard*.

LOW WATER SAFETY-VALVES.—A new safety valve has been patented in England, so contrived that when the water falls below a certain height, a float upon its surface raises a valve and permits the water to escape directly into the fire, thereby extinguishing it.

Scientific Miscellany.

THE AMERICAN ELEPHANT.—The *American Naturalist* for March, has an article by Dr. Packard, on "the Hairy Mammoth," from which we quote the following:

"Prof. Leidy has claimed, on partial evidence (a complete skull not having yet been found), the existence of a truly American species of elephant (*Elephas Americana*), representing in the new world the European and arctic Hairy Mammoth. This species replaced, in the warmer parts of our country, the Siberian elephant. Its remains, like those of the mastodon, are found at the bottom of swamps and in the upper strata of river sands. It should be borne in mind by the reader, that these deposits of river alluvium are the most recent of the deposits of the post-tertiary age. They should not be confounded, as they often are, with the true glacial or drift deposits, which were thrown down at an immensely earlier period, so far as known facts teach us. In the Northern States, at least, we had the following succession of events antedating the appearance of the American elephants, including the mastodon, though this does not preclude their existence southwards, where the climate was hotter. The warm climate of the latest Tertiary (Pliocene), in which the temperature of New England and the Northern States may have been like that of the Gulf States at the present day, gave way to the arctic cold that brought with it the snows and glaciers of the true Glacial epoch, the period which separates the Tertiary from the Quaternary periods. For ages the ice king held sway over this immense territory. The walrus, and perhaps the musk-ox, the white bear and arctic fox occupied the land that had perhaps shook beneath the tread of the Megatherium and Botherium, the American lion and the mastodon and elephant; and the creeping willow and procumbent birch and lowly cranberry, the snow white *Arenaria greenlandica*, and other arctic plants succeeded the gaudy flowers and luxuriant forests of the latest Tertiary soil.

Centuries after, the continent slowly sinks, perhaps 600 feet; the sea laves the foot of the White Mountains; the temperature is raised and the glaciers have retreated to the Alpine valleys. This is the period of the *Leda clays*, in which bones of the hison and walrus are found. But not until a later and still warmer period, that of the rearrangement of these sands and clays into lake shores and fertile river intervals, does the mammoth (so far as fossil evidence goes) seem to have flourished abundantly."

FLUID IN CRYSTALS.—A paper was recently read before the Manchester (Eng.) Philosophical Society by Mr. J. B. Dancer, in which he states that he had examined a large number of crystals of various kinds, and had found fluid in quartz from several different localities, and also in fluor spar. The latter burst at a temperature of 180°. Sir David Brewster found pressure cavities containing fluid, in the diamond, ruby, emerald, amethyst, and other crystals. Mr. Dancer suggested the employment of the microscope as a means of detecting spurious from real gems; the flaws and cavities are so distinct in character in the two, that there is no difficulty in doing so, after a little experience.

IMPROVEMENT IN VOLTAIC PILES.—M. Zaliwski Mikorski's latest experiments show that by increasing the height of the elements without altering their base, a current proportionate to the height may be obtained. He recommends the following method for increasing the energy and permanency of a Bunsen's battery: Place two porous vessels one within the other; into the first, containing the carbon, pour nitric acid; into the second, sulphuric acid; finally, into the outer vessel, containing the zinc, pour sal-ammoniac. There is no effervescence, and the zinc undergoes no useless destruction.

THE EARTH'S TEMPERATURE.—At the depth of forty feet the temperature is about the same in one place as in another, and in all seasons of the year. In the colder latitudes, however, the earth at the same depth is always frozen, only on the surface. It is a startling fact, that although flowers bloom, and strawberries fruit, yet beneath them all the ground is eternally frozen. It has been proved that in Siberia the ground freezes to the depth of at least 800 feet.

COLORS OF STARS WITH DIFFERENT TELESCOPES.—Mr. John Browning of the Royal Astronomical Society, states that colors of celestial bodies estimated by comparison with the ingenious chromatic scale of Admiral Smyth, in which each color is represented of four different degrees of intensity, will not possess any relative value unless taken in connection with the aperture of the telescope employed when the color was estimated. Experimenting in relation to this subject, he had noticed that the chocolate color of the so-called belts of Jupiter is much more perceptible with an object glass of six inches in diameter than with one twelve inches. A small cluster in *Perseus* appears of an indigo-blue with 8½ inches, Prussian-blue with 10¼ inches, and royal-blue with 12¼ inches of aperture. Were due allowance made for this disturbing influence by variation of aperture, many discrepancies between colors attributed to double stars by different observers might probably be reconciled.

INFLUENCE OF THE DIFFERENT RAYS UPON VEGETATION.—Recent experiments by L. Caillette confirm those made many years ago by Morren, of France, with regard to the influence of the luminous rays in vegetable growth. The former advances a step further by including the red, as well as the yellow ray, among those most favorable in promoting the decomposition of carbonic acid gas by plants. All the rays more refrangible than the yellow are powerless in this respect. Under the influence of green light, not only does no decomposition take place, but new quantities of carbonic acid are formed; the exhalation of the gas by the fresh leaf being nearly as much under this condition as when placed in the dark. Light passed through a solution of iodine in bisulphide of carbon, prevents decomposition of the acid, and the appropriation of carbon by the plant, but does not seem to increase the quantity of acid, which might be inferred from the fact that the violet is the most refrangible of the colored rays. Many experiments have been made in this country which give the same general results as those of Morren and of Dr. Dauhney, of England, but differ somewhat from those of Caillette.

ALCOHOL FROM WOOD.—The wood is boiled for twelve hours in hydrochloric acid diluted with ten times its volume of water. The acid liquid, which is charged with grape sugar formed from the spongy cellulose, is then withdrawn, the excess of acid saturated with lime or chalk, and a small quantity of yeast is added, the temperature being kept at about 68° Fab. Fermentation soon ensues, and when bubbles of carbonic acid gas are no longer evolved, the liquid is distilled to obtain the alcohol.

PALEOZOIC INSECTS OF NOVA SCOTIA.—Mr. J. Barnes, of Halifax, last year found in a bed of shale at Cape Breton, a wing which must have belonged to an insect measuring at least seven inches across the wing. Dr. Dawson says: "We can imagine the larvae of these gigantic Ephemeræ swarming on the deep black mud of the ponds of carboniferous Acadia, and the perfect insects flitting in millions through the dense thickets of the coal swamps."

THE NEW PLANET.—The planet which has been named *Undina*, was discovered simultaneously by Mr. Peters, of Hamilton College, New York, and Tietjens, of Berlin, Prussia. It is between the 10th and 11th magnitude. It was first seen on the 7th of July last.

OXYCHLORIDE OF MAGNESIUM AS A CEMENT.—M. Sorel produced a cement by combining chloride of magnesium with oxide of magnesium, which readily takes all varieties of form, and when solidified, receives a high polish. It resists the action of water. It answers the same purpose as oxychloride of zinc and is cheaper.

THE ELECTRO-DEPOSITION OF COPPER.—It very frequently occurs that the copper which is deposited by electric means is so brittle as to render it unfit for manufacturing purposes. A very simple and ingenious method of preventing this has been described by M. Bouillat. He has found that a small quantity of gelatine dissolved in the water of the bath, gives a copper nearly equal in malleability to rolled copper.—*Pop. Science Review*.

Boiler-Making, etc. in this City.

There appears to be considerable activity at the present time among the boiler-makers in this city,—as any one may become most sensibly aware of by taking a walk through Fremont and Beale streets. We dropped in, a few days since, at the establishment of Baurhyte, McAfee & Spiers, on Howard, between Fremont and Beale streets, where we found a large amount of work in the shop, or just completed, as follows:

Three boilers for Scherman & Co., who are building a flour mill at Benicia. The engine and other machinery for this mill, is being built at the foundry of Keep, Blake & Co., Stockton. The mill will be supplied with five pairs of $4\frac{1}{2}$ feet stones, and will be ready for this year's crop. The second pair of boilers for the Rolling Mill Co., were finished and ready for testing. They had just finished a large fire-box, or locomotive boiler, for the C. S. Navigation Co., which appeared to be a fine piece of workmanship. Mr. McAfee has done himself much credit in the construction of this boiler; from an examination of the workmanship, and the substantial manner in which it is braced, we should suppose there could be very little danger of an explosion, under anything like fair usage.

There were two boilers, 44 inches in diameter by 10 feet in length, just being finished for Messrs. Ford & Sanborn, of Watsonville, designed to replace the old boilers now in their sawmill. We noticed, also, a fire-box boiler, for Mr. Wiley, designed for a boat which he is building, at Union City. This is a duplicate of one built for Barron Bros., which we have already noticed. Mr. W. is having the engines for his boat built at the San Francisco Foundry.

Messrs. B., McA. & S. have also a contract for a portable engine and boiler, and a set of double circular saw irons for the San Joaquin Mill Co., which is putting up a mill for cutting lumber, the logs for which have been floated down from the mountains during the past season. The machinery for this mill is being built at the Fulton Foundry, an establishment well known among saw millmen for their superior class of work in that line. The drawings for the engines,—which are 9-inch cylinders by 16-inch stroke,—were made by Mr. Spiers. In preparing them he has endeavored to combine the best features of the Scotch and American engines of that class.

We also noticed on the floor of this establishment the large cylinder, which we recently mentioned as having been ordered by the Wood Preserving Co. of this city.

They are also building two boilers 44 inches diameter by 24 feet in length, for Mr. Stanford, designed for a sawmill, the machinery for which we believe is being built at the Fulton Foundry; also one 48 inches diameter by 16 feet in length, for a new quartz mill now being erected in Scott's Valley, Siskiyou County. The engine and machinery for this mill is being built at the Aetna Foundry.

We noticed several small boilers in process of construction, designed to be used for working Wilcox's Water Lifters, which method of raising water is about to be more extensively introduced into use in some portions of this State, and of which we shall say more at a future time.

THE UNION FOUNDRY,

Booth & Co., recently shipped for Martinez an upright tubular boiler, for Coffin & Standish's new steam plow. This boiler has been built with especial reference to compactness and lightness, these being very essential requisites for the purpose for which the boiler is intended to be used. It has 120 $2\frac{1}{2}$ -inch tubes; is 48 inches outside diameter, and seven feet two inches long. This plow, with an engine and frame built expressly for the work, will soon be ready for trial.

This foundry has also recently turned out

four boilers, 54 inches diameter by 16 feet in length, two of which were for establishments in this city, and two for sawmills at Coburn's Station, just over the Summit, which are employed in getting out railroad ties for the Central Pacific R. R. Also two others, one of which is 48 inches diameter by 14 feet in length, and the other 52 inches by 16 feet—both designed for Kimball & Ogden's extensive carriage factory, now in process of erection at the corner of Fourth and Bryant streets in this city.

We also noticed at the same works six other boilers, whose destination we did not learn, but whose dimensions are as follows:—48 inches by 16 feet; 48 inches by 15 feet; 44 inches by 15 feet; 40 inches by 14 feet; 36 inches by 13 feet; and 36 inches by 12 feet.

MINERS' FOUNDRY.

At this foundry we gathered the following items in the way of boiler work, just completed or under way:—A large low-pressure 9-foot diameter fine boiler, for the new Oakland ferry boat, now being constructed at the Potrero; four fine boilers, 36 inches diameter by 16 feet long, for Mr. Pershbocker,—destined for a sawmill up the coast; two 35 inches by 26 feet each, having two 15-inch flues, designed for Page & Downer's sawmill, near Santa Cruz. They are also building an engine for the same parties.

At this establishment they are building one of their Hicks' engines, to be accompanied by a tubular boiler 36 inches diameter by 15 feet long, for Harris, Tate & Co's flour mill in Monterey County. Another of these engines, with 30-inch by 12-foot boiler, is being built to the order of Mr. F. S. Wilcox, for his tannery at San Antonio. A boiler and engine was shipped from this foundry, about two weeks since, to C. W. Howland, for his flour mill at Petaluma.

Among other work, we noticed two large boiler-iron tanks, in process of construction for the Linseed Oil Factory in this city. These tanks are 36 feet long by 12 feet wide and 6 deep—much the largest ever built on this coast. The necessity for such immense reservoirs, is pretty good evidence of the large amount of oil which is being manufactured at that establishment.

The large amount of boiler work which is now being turned out at the establishments noticed, may afford some index of the revival of business in the foundry and machinery line, after the stagnation necessarily incident to a long and unusually severe rainy season. It may be proper to state that the establishments noticed above do not include one-half of those which are more or less engaged in boiler-making in this city, to say nothing of the numerous establishments in other parts of this and the neighboring States. We shall take a look into other of our city shops at an early day. In the meantime we congratulate all parties on the favorable indications for an unusually prosperous season which is apparent in every department of industry throughout the State, and entire Pacific Slope.

TAXING MINING CLAIMS.—The following, from the Nevada Gazette of April 24th, is the reply of the District Attorney of Nevada county, to certain formal queries by E. F. Bean, County Assessor:—

1st. That mining claims, and all other possessory rights, interests or estates upon the public lands are legally assessable for State and county taxes, to the extent of their value.

2d. That such interests should be assessed as real property, and in the usual legal mode of assessing such property.

3d. As respects the certificates of stock in corporations organized in this State, in all cases when the property of such bodies is actually taxed, the certificates are by law exempted from taxation. The certificates of stock in corporations organized in other States, present more difficulties. Upon the whole I am of the opinion, that, under the authority of the case of the People vs. McCreery, it is your duty to assess all such stock at its actual valuation in this State.

WM. W. CROSS,

District Attorney, Nevada Co.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

List of patents issued from the United States Patent Office for the Pacific coast and Territories for the week ending April 7th, 1868:

COMBINATION LOCK FOR DOOR.—Wm. C. Bussey, San Francisco, Cal.:

FRICTION CLUTCH.—James B. Johnson and William H. Birch, San Francisco, Cal.

POTATO DIGGER.—Benjamin P. Wright, San Francisco, Cal.

PROCESS OF EXTRACTING GOLD FROM ITS ORES.—Rudolph D'Heureuse, San Francisco, Cal.

GANG PLOW.—W. F. Higgins and Jerome Perry, Watsonville, Cal.

ORE CRUSHER AND GRINDER.—Seymore Hughes, San Francisco, Cal.

KILN FOR DRYING MALT.—Christian Offinger and Sebastian Grupp, San Francisco, Cal., assignors to themselves and Henry Stempleman of same place.

CULTIVATOR AND HARROW.—Simon Conrad, Petaluma, Cal.

PATENTS RECENTLY ISSUED.

75,851.—IMPROVED WASHING MACHINE.—John F. Chambers, San Francisco, Cal.

I claim the combination of the toothed beaters or rubbers E, E, with the yielding, corrugated metallic bottom, C, C, constructed and operating substantially as described.

The object of this invention is to provide an improved washing machine, so constructed that by means of wooden teeth, clothes, etc., may be rubbed upon a yielding corrugated metallic surface, in imitation of the rubbing upon a common wash-board, by hand. This is accomplished by employing a square or oblong box, having a concave corrugated bottom, with a center piece of wood or other material, made smooth. The beating or rubbing apparatus consists of three or more boards, set edgewise on the box. The lower edges of the boards are slightly rounded, with a plane in the center, and provided with teeth, which are made in opposite directions to the plane, similar to saw-teeth. These beaters are suspended by an axle, which passes through upright standards, and has its bearings on the sides of the box, and are operated by an eccentric driving-shaft, having its bearings in standards.

76,070.—BACK AND ABDOMINAL SUPPORTER. Mrs. John Ford, Salem, Oregon:

I claim the abdominal supporter constructed as described, consisting of the band B, provided with the shoulder straps F, and thigh straps G, and having a gathered center H, upon each side of which the eyeleted strips I, J, are secured, the ends of the said bands provided with the eyeleted strips L, and clasps C, D, all arranged as described, whereby the supporter can be converted into a band, to be used after confinement, as herein set forth.

76,116.—WINDOW FRAME.—Otto Edward Henry Sturcken, San Francisco, Cal.:

I claim 1. A swing side-strip B, combined with the adjustable cord-fastening D, and ground sash E, all constructed and operating as described.

The lock C, in combination with the sash E, strip B, fastening D, as described and for the purposes set forth.

72,249.—IMPROVED DEVICE FOR RAISING WINDOW SASH.—John D. Cramer, San Francisco, Cal.:

I claim the combination and arrangement of the several parts of my device, namely, the recess A, with the slotted plate B, and the plate D, connected to the staff C by the curved piece e, substantially as described.

The object of this invention is to provide an improved device for raising and lowering the upper sash to windows, more especially those windows composed of one light or pane of glass, known as plate glass. To do this the inventor cuts an opening or slot midway in the upper or transverse part of the sash, over which is placed a plate, having an opening large enough to admit the end of a rod or pole, curved at its upper end, and having a flat vertical plate attached to it. In order to open or close the window, the curved end of this pole or rod, of sufficient length, is inserted in the

slot, by a person standing on the floor, and the sash thus raised or lowered. By this means a ready article is at hand for opening and closing windows without recourse to stool, chair, etc., and liability to bodily injury by falling, breaking of glass, etc.

76,508.—IMPROVED KILN FOR DRYING MALT. Christian Offinger and Sebastian Grupp, of San Francisco, Cal., assignors to themselves and Henry Stempleman, of same place:

We claim the openings D, D, for the passage of cold air to the chambers C, in which the cold and hot air are combined, and the pipes E, E, E, provided with cups or valves E', for conveying it to different parts of the perforated plate, the whole constructed and arranged substantially as and for the purposes specified.

The design of this invention is to provide a kiln for drying malt, in which a great saving of time will be had, while economy and convenience will be one of its features. The invention consists of a furnace constructed in the usual manner, having an arch work of masonry or iron over it, which forms an air-chamber entirely around the furnace. The furnace is placed upon a bed having openings in its sides leading under the center of the furnace, for the purpose of supplying cold air to be heated for the purpose of drying. The arch-work has, radiating from its top and directly under a perforated metal plate, pipes or tubes, for the purpose of equally distributing the heated air from the furnace, in order that the malt placed upon the screen or perforated plate may be quickly and evenly dried.

RECENT INVENTIONS.

NEW HYDRAULIC NOZZLE.—The Nevada Transcript describes a new hydraulic nozzle recently invented by C. C. Craig and Joseph Craig, of Nevada, which consists of a globe or socket joint, having a canting fifteen inches in diameter. The inner hemisphere fits smoothly to the inner surface of the outer sphere—the former being supplied with the escape pipe and the latter with the supply pipe. The entrance is six inches in diameter and the escape five and a half. The pressure of water on the interior of the globe causes the surface to fit closely together and there is no leakage. The escape pipe may be turned easily either in a perpendicular or horizontal direction so as to throw water over an extent of forty-five degrees, and the range will be greatly increased by attaching a short hose to the nozzle. The object of the invention is to change the direction of a stream without trouble, and also to do this without diminishing the pressure of water.

MINERAL VS. AGRICULTURAL.—The following from the Marysville Appeal of April 26th, explains itself:

Department of the Interior, General Land Office, Washington, March 27th, 1868.—Register and Receiver, U. S. Land Office, Marysville, (Cal.), gentlemen:—Complaint has been made to this office that lands in townships 20 and 21 North, Range 4 East, Mount Diablo Meridian, Cal., within the 20 mile limits of the Oregon and California Railroad Co., have been fraudulently surveyed and returned as "agricultural," and are now being filed on as double minimum; while in fact they are mineral lands containing valuable deposits of gold. You are specially advised not to suffer entries to be consummated as "agricultural" entries, where there is a prima facie showing, or where there is good reason to believe that the predominating value of the land applied for, consists in its deposits of gold, silver, copper, quicksilver or coal, without a full investigation upon sufficient notice to parties adversely interested, and further instructions from this office, after an examination of the testimony thus taken, which you are directed to transmit with your joint opinion thereon.

You will be further advised in reference to this matter on the receipt here of fuller information, accompanied by affidavits of leading citizens of the neighborhood, which it is stated are being prepared for transmission.

In the mean time you are requested to report to this office all information at your command or in your possession, touching the matters above referred to. The Surveyor General has been written to upon the subject. Very Respectfully,

JOS. S. WILSON, Com'r.

The patent coupon-tickets and nippers went into use yesterday on the different street railroads. The process of taking fare by these is very slow, but may be more rapid when the conductors are familiar with them.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board

SAN FRANCISCO, SATURDAY MORNING,
May 2, 1888.
Financial.

Our domestic money market demonstrates increased activity and life. Demands for money for business purposes are decidedly more urgent, giving good assurance of a renewed and increasing trade with encouraging prospects. First-class commercial paper is readily discounted at 1 per cent. per month, and second-class borrowers find accommodation at 1 1/4 per cent. The requirements of stock brokers have been considerably increased of late, and are supplied at 1 1/4 per cent—a somewhat wider range. Loans of large amounts upon real estate, and other unexceptionable collaterals, are effected at 10 per cent. per annum. The rates in savings banks rule mostly at 1 per cent. per month, at which figure the demand is fair, the balances of cash on hand being none too large to create uneasiness about investment, although the deposits increase steadily.

Reports from the interior indicate a growing prosperity in all the several interests of agriculture, trade and mining. In this city, building is going on to an extent far surpassing all former years. Edifices, which two years ago were considered excellent, and even fine, have been placed upon rollers and trotted out to the suburbs, to make room for others of larger size and more substantial structure. Even since the cessation of the rainy season some of our widest streets leading toward the Mission have been more or less blocked by houses on their travels to the outskirts. Iron fronts are taking the place of stone and bricks, and the buildings faced with that metal present an appearance of neatness, grace and solidity imparted by no other material. San Francisco is full of strangers—visitors from the East—who, taking advantage of the reasonable rates of fare on the steamship lines, have come here with an eye to future and permanent location. It is worthy of record, that the first day the California Labor Exchange opened for the discharge of its self-imposed duties, over one hundred and fifty applicants were supplied with employment. On the occasion of inaugurating this valuable aid to operatives, Mr. Curtis remarked that the Pacific Railroad was ready to employ five thousand hands, and that parties receiving a certificate from the Directors of the Labor Exchange, to the effect that they were bona fide applicants for obtaining work, would be passed over the road, free of charge, to the point of operations on the eastern side of the Sierra Nevada. He agreed to pay them thirty dollars a month in gold, food and lodging included, which, with economy and sobriety, would enable each man in seven months to purchase eighty acres of the most fertile lands along the line of road. The Central Pacific Railroad now employs sixteen hundred mechanics of different kinds, whose wages average from two to five dollars per day, in gold, according to the nature of their trades. Mr. Curtis added, that the road could employ about twelve hundred more this summer. These are very prominent and important facts, which we commend to the attention of all who are really desirous of employment. It cannot now be urged as an excuse, that the cost of transportation is too great to permit a poor man to reach the field of operations. There are scores of men in this city who are now loitering about the streets, professing to seek work; but in reality passing a life of idleness and want, which will eventually lead them to the commission of crime, if continued.

City Stocks.

In miscellaneous shares there is little doing, and the offerings have been comparatively small during the period under review. These securities are at present held with more firmness, and prices in consequence show considerable improvement. Small sales of Spring Valley Water were made at \$65 50, and California Steam Navigation Co. at 70 per cent. Central Railroad stock was in the market at \$51 00/50.

The San Francisco Gas Co. paid its usual monthly dividend of one-half per cent. on the first instant. The Pacific Bank, on the same date, disbursed one per cent. per month for the past four months. Spring Valley Water Co. will disburse a dividend of 1/2 per cent., on the 10th instant.

The receipts of the local insurance companies during the month of March, and previously this year, according to the returns made to the Internal Revenue Department, have been as follows:

	March.	Previously this year.	Total.
Pacific	\$66,999	\$128,862	\$195,861
Union	32,711	70,691	103,402
National	67,423	109,554	176,977
Fireman's Fund	23,157	34,957	58,114
Builders'	18,006	35,314	53,320
California	13,496	22,390	35,886
Merchants' Mutual Marine	24,889	27,291	52,180
Occidental	6,244	9,784	16,028
Home Mutual	9,924	15,558	25,482
San Francisco	5,419	8,114	13,533
Peoples'	4,478	12,593	17,071

Totals.....\$241,151 \$492,786 \$733,936

The returns were made upon a logical tender basis, the rate—72 cents for January, 71 cents for February and 72 cents for March—being fixed every month by the Assessor of the district.

The above statement shows a gain over the receipts in February of \$21,539. The receipts of the several companies in March, as compared with February, show the following difference:

	March.	Previously this year.	Total.
Pacific	\$24,449	\$43,644	\$68,093
Union	21,857	39,338	61,195
Central	12,989	24,169	37,158
Front Street, Mission & Ocean	7,996	14,327	22,323
Market Street	7,401	12,336	19,737
Potrero and Bay View	1,845	2,692	4,537

Totals.....\$76,727 \$136,507 \$213,234

As compared with the total receipts in February we find a gain of \$7,689. The receipts of March as against February show the following difference:

	Increase.	Decrease.
Omni-bus	\$1,384	
North Beach and Mission	1,904	
Central	1,929	
Front Street, Mission & Ocean	755	
Market Street	1,654	
Potrero and Bay View	71	

Mining Share Market.

The mining share market during the past week retained the activity noted for some months past, but prices exhibited a downward tendency up to near the close, when a better feeling manifested itself and a slight rally took place. We may reasonably look for a continued improvement, since most stocks had fallen to a comparatively low figure. In regard to developments through the Imperial-Empire shaft, it is our firm belief that the ledge will be reached before long, and the indications undoubtedly are favorable to this view. When this does occur, we may look for a sharp advance—possibly greater than the prospective prices recently obtained. This will cause renewed energy in others, and a more general activity will speedily follow.

The offices of the various mining companies are gradually locating in the neighborhood of the Board rooms, making it more convenient for all dealers. The Hale & Norcross company will soon remove its office to Hayward's new building on California street, and the Crown Point, Kentucky and Amador companies have already comfortable quarters in the same commodious, elegant and substantial structure.

Hale & Norcross—sold at \$2,050/2,000. The 1,080 foot station has been opened, and drifting will soon be commenced. The capital stock of this company has been increased to \$1,600,000, divided into 8,000 shares of \$200 each. This will make twenty shares to the foot. We have nothing of special interest from the mine. The office of this company will be removed to Hayward's new building on California street early next week.

Crown Point—opened at \$2,305, advanced to \$2,350 seller 30, declined to \$2,200, and closed at \$2,260. On the 28th of April, the 800 level east was not looking so well, but in the afternoon ore was making to the east again, with every appearance of widening. A dispatch of May 1st, states that the 800 level, in going south, showed great improvement—porphyry on the west side giving way to good pay quartz. Extract about 150 tons of ore per day. The receipts of bullion to date for April foot up \$98,123. The ore will average \$38/40 per ton during the month of April.

Savage—was quite active at a decline, receding from \$159 to \$152, and closing at \$155. During the week ending April 25th, 1,483 tons of ore were extracted, showing an approximate value of \$33 81 per ton. From the north mine, on the third station, a large amount of good ore continues to be extracted; but the south mine, on the fourth level, as they approach the Hale & Norcross line, is growing poorer. The winze to the fifth station from this point is 111 feet in depth, and said to continue in good ore. The connection will soon be made with the fifth station. The north mine on the fifth station looks very encouraging, and the south drift has improved considerably, while a west cross-cut, run to connect with the winze from above, is said to show six feet of good ore.

Imperial—exhibited marked activity during the period under review, dropping from \$290 to \$225, and closing at \$245. The water is decreasing quite rapidly, having been lowered twenty feet in the Alta shaft on the 30th ult., and in the twenty-four hours ending yesterday morning, one foot in the drifts. The previous day it was five feet in depth.

Empire—sold at \$302 60/250, and at the close \$285 is bid. By telegraphic advices of yesterday morning, we learn that the drifts contained five feet of water, but during the previous twenty-four hours had been reduced some eighteen inches. Gould & Curry was in the market at \$575/535, closing at \$550. We observe that A. K. Dwyer has assumed the duties of Secretary, while Mr. Bowie, the former Secretary, will soon leave to take charge at the mine.

Kentucky—declined from \$485 to \$430, and closed at \$445. Bullion receipts for April amount foot up \$74,765. Ophir receded from \$210 to \$170, closing at \$182. The new shaft is about 215 feet in depth, and sinking is easier. OVERMAN gradually fell from \$165 to \$109, rallied to \$122 50, and closed at \$136. Extract about twenty-five tons of ore daily from the 500 level, which, it is said, should yield \$35 per ton, and about eighty tons of various grades from other levels. Bullion receipts since our last issue, \$8,041.

Chollar-Potrero—opened at \$270, receded to \$225, and closed at \$242. No important change in the mine. The upper portion of the Blue Wing stop shows a slight improvement. On the 27th of April, they shipped 84 tons of ore to the mills. SEGREGATED BELCHER sold at \$21 50/15, and closed at \$18. It will require about two weeks to fully repair the shaft. Some 225 tons of "better" class, and 160 tons of low-grade ore have been extracted.

Lady Bryan—sold at \$38/26, closing at \$29. We are informed that no compromise has been made or entertained. Neither has any patent been issued by the United States, nor will be, until the suits now pending in Virginia have been decided.

The sales in the Board during the past week have been as follows: Regular sessions, \$2,053,019; open sessions, \$6,104—total, \$8,157,038. For the month of April, the sales aggregate \$12,385,314 against \$11,471,830 in March, being the largest amount of transactions in a single month since the organization of the Board.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

ALLEGHANY CONSOLIDATED MINING CO.—Yuba county. April 27th. Capital stock, \$600,000; 6,000 shares, \$100 each. Trustees: E. F. Baldwin, J. M. Buffington and Chas. Brainard.

RISDON IRON AND LOCOMOTIVE WORKS CO.—April 30th. Capital stock, \$1,000,000; 10,000 shares, \$100 each. Trustees: J. N. Risdon, C. E. McLane, Lloyd Tevis, C. J. Brenham, Joseph Moore, S. F. Butterworth and James Pollock.

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
American.....	Meeting, May 26	Payable Jan 10
Amador Co., dividend, \$6 per share.....		
Bacon M. & M. Co.....	Meeting, May 8	
Bullion, March 5, \$10.....	Sale May 5	
Belcher H. & V. Co., March 13, \$5.33.....	April 13—May 4	
Belcher, Vir., Nov., March 13, \$5.....	April 13—May 4	
Black Ledge, Lander Co., Nov., Mar. 23, \$10.....	May 1—May 18	
Caledonia, Gold Hill, Nev.....	Special Meeting, May 12	
Cherokee, Flat Butte Co., April 23, \$5.....	May 26—June 9	
Compo Seco, Calaveras Co., Jan. 28, \$2.....	April 7—May 15	
Consolidated Virginia.....	Special Meeting, May 9	
Confidence, Storey Co., Nov., Mar. 27, \$17.....	April 13—May 14	
Crown Point, Gold Hill, Nev.....	Special Meeting, May 11	
Chilpanct, Mexico, March 24, \$5.....	April 24—May 11	
Chuk Mt., Nevada Co., March 16, \$1.50.....	May 12—July 6	
Daney, Lyon Co., Nev., April 2, \$3.....	May 6—May 25	
Empire M. & M., Nev., dividend \$6.....	Payable May 15	
Empire M. & M. Co., Nov.....	Special Meeting, June 2	
Folsom St. & Port Pl. R. R., April 25, \$5.....	May 26—June 11	
Globe, Alpine Co.....	Meeting, May 20	
Gold Hill, Storey Co., Nov., March 13, \$20.....	April 11—May 8	
Golden Gate, Tuolumne Co., div. \$3 sh.....	Payable Feb 26	
Gold Hill M. & M. Co., dividend, \$7.50.....	Payable Dec 16	
Hope Gravel, Nevada Co., April 3, \$1.....	May 4—May 25	
Honest Miner, Lander Co., March 25, \$10.....	May 1—May 18	
Independence.....	Annual Meeting, May 4	
Juila, Storey Co., Nev., April 23, \$2.50.....	May 28—June 16	
Joe Lane, Lander Co., Nev., March 25, \$10.....	May 1—May 18	
Keystone.....	Annual Meeting, May 6	
Kentuck, div. \$1 per share.....	Payable March 14	
Lyon M. & E. El Dorado Co., April 21, \$5.....	May 27—June 15	
La Blanca, Sonora, Mex., March 27, \$2.50.....	April 3—May 16	
Newton, copper.....	Annual Meeting, May 13	
Neustra Senora, Mexico, March 27, \$1.50.....	April 23—May 19	
N. A. Wood Preserving Co., Feb. 29, \$2.50.....	April 9—April 28	
Morning Star, Alpine Co., Feb. 14, \$1.....	April 11—May 4	
Pactroela and Dolores, Mex., April 15, \$2.....	May 18—June 6	
Planet, copper.....	Annual Meeting, May 4	
Phila. Slides El Dorado Co., April 14, 25c.....	May 25—June 15	
Rippon.....	Annual Meeting, May 19	
Rattlesnake, Yuba Co., April 28, \$2.....	May 29—June 15	
Santa Ana, Amador Co., April 27, \$100.....	June 5—June 30	
Sierra Nevada, Storey Co., Nev., April 11, \$10.....	May 19—June 6	
Savage, Virginia, Nev., dividend.....	Payable April 15	
San Francisco City and Co. Judg. Bds. 7s, 1865.....	Payable April 10	
Tellurium, Amador Co., March 31, \$.....	May 7—May 17	
United States, Storey Co., Nev., April 11, \$3.....	May 21—June 9	

Those marked with an asterisk () are advertised in this Journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.	
FRIDAY EVENING, May 1, 1888.	
MISCELLANEOUS STOCKS.	
United States 7 1/2 U.S. Bonds, June Issue.....	77 7/8
Gold Tender Notes.....	71 1/4
California State Bonds, 7s, 1877.....	93 3/8
San Francisco Bonds, 10s, 1881.....	102 1/2
San Francisco City Bonds, 8s, 1885.....	82 1/2
San Francisco City and County Bonds, 7s, 1885.....	82 1/2
San Francisco City and Co. Sch'l Bds, 7s, 1886.....	82 1/2
San Francisco City and Co. Bonds, 7s, 1882.....	81 84
San Francisco City and Co. Bonds, 7s, 1884.....	80 85
San Francisco City and Co. Bonds, 7s, 1885.....	81 83
San Francisco City and Co. Judg. Bds, 7s, 1885.....	84 85 1/2
San Francisco City and Co. Judg. Bds, 7s, 1884.....	83 85
Sacramento County Bonds, 8s.....	78 79
Marquette Bonds, 10s.....	75 76
Stockton City Bonds.....	70 71
Yuba County Bonds, 10s.....	72 73
Santa Clara County Bonds.....	78 79
Butte County Bonds, 10s, 1880.....	70 71
San Mateo County Bonds, 7s.....	80 81
California Central Navigation Co.....	40 41
Spring Valley Water Co.....	65 66
State Telegraph Co.....	30 32
GAS COMPANIES.	
San Francisco Gas Co.....	74 75
Sacramento Gas Co.....	—
RAILROADS.	
Sacramento Valley Railroad.....	—
San Francisco and San Jose Railroad.....	40 45
Omni-bus Railroad.....	64 68
Central Railroad.....	40 41
North Beach and Mission Railroad.....	60 61
Front Street, Mission and Ocean Railroad.....	11 12
BANKING INSTITUTIONS.	
California Loan and Savings Society.....	—
Bank of Pacific Accumulation Loan Society.....	90 100
The Bank of California.....	138 165
INSURANCE COMPANIES.	
Fireman's Fund Insurance Co.....	85 86
Pacific Insurance Co.....	120 122
San Francisco Insurance Co.....	—
Merchants' Mutual Marine Insurance Co.....	480 483
California Mutual Marine Insurance Co.....	130 140
Union Insurance Co.....	90 92 1/2
California Home Insurance Co.....	—
Home Mutual Insurance Co.....	8 10
Occidental Insurance Co.....	77 78
National Insurance Co.....	72 72 1/2
MINING STOCKS—WASHOE DISTRICT.	
Alpha.....	88 99
Bullion.....	390 395
Belcher.....	60 62 1/2
Bullion, G. H.....	2270 2280
Crown Point.....	237 1/2
Confidence.....	237 1/2
Chollar-Potrero.....	237 1/2
Daney.....	9 10
Exchequer.....	56 57
Empire Mill and Mining Co.....	250 270
Gould & Curry.....	514 509
Gold Hill Quartz.....	129 140
Hale & Norcross.....	243 245
Imperial.....	445 430
Kentuck.....	29 30
Lady Bryan.....	29 30
Ophir.....	12 15
Overman.....	137 137 1/2
Savage.....	155 156
Sierra Nevada.....	12 15
Yellow Jacket.....	1324 1330
Golden Rule, California.....	10 12

San Francisco Market Rates.

Wholesale Prices.	
FRIDAY, May 1, 1888.	
Flour, Extra, per bbl.....	\$6 — @ \$7 50
D. W. Superfine.....	5 50 @ 6 25
Corn Meal, per 100 lbs.....	3 00 @ 3 50
Wheat, per 100 lbs.....	2 30 @ 2 47 1/2
Oats, per 100 lbs.....	2 15 @ 2 50
Rye, per 100 lbs.....	2 15 @ 2 50
Beans, per 100 lbs.....	2 50 @ 3 00
Potatoes, per 100 lbs.....	1 25 @ 1 50
Hay, per ton.....	14 00 @ 25 00
Live Oak Wood, per cord.....	9 00 @ 10 00
Beef, extra, dressed, per lb.....	11 @ 12
Sheep, on foot.....	3 00 @ 4 00
Hogs, on foot.....	12 @ 15
Hogs, dressed, per lb.....	10 @ 12
GROCERIES, ETC.	
Sugar, crushed, per lb.....	1 1/2 @ 1 1/2
Corn, China.....	10 @ 11 1/2

Coffee, Costa Rica, per lb.....	16 1/2 @ —
Do, Rio.....	15 @ 17
Tea, Japan, per lb.....	45 @ 55
Do, Green.....	60 @ 125
Hawaiian Rice, per lb.....	— @ 9
China Rice, per lb.....	40 @ 42
Cashew, per lb.....	15 @ 16
Candies, per lb.....	25 @ 32
Ranch Butter, per lb.....	17 @ 18
Isthmus Butter, per lb.....	15 @ 16
Cheese, California, per lb.....	15 @ 16
Eggs, per dozen.....	28 @ 34
Lard, per lb.....	14 @ 15
Ham and Bacon, per lb.....	12 @ 16
Sausages, per lb.....	8 @ 10

Retail Prices.

Butter, California, fresh, per lb.....	35 @ 40
Do, picked, per lb.....	25 @ 33
Do, Oregon, per lb.....	15 @ 25
Do, New York, per lb.....	35 @ 40
Cheese, per lb.....	20 @ 35
Honey, per lb.....	25 @ 30
Eggs, per dozen.....	35 @ 40
Lard, per lb.....	15 @ 17
Ranch Butter, per lb.....	20 @ 25
Cranberries, per gallon.....	1 1/2 @ 2
Potatoes, per lb.....	2 @ 3
Potatoes, Sweet, per lb.....	3 @ 5
Tomatoes, per lb.....	— @ 10
Onions, per lb.....	8 @ 10
Apples, No. 1, per lb.....	4 @ 5
Pears, Table, per lb.....	5 @ 7
Plum, dried, per lb.....	10 @ 11
Peaches, dried, per lb.....	5 @ 7
Oranges, per dozen.....	50 @ 60
Chicken, per dozen.....	50 @ 60
Turkeys, per lb.....	20 @ 25
Soap, Pale and C. O.....	7 @ 12
Soap, Castile, per lb.....	16 @ 17

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, May 1, 1888.	
IRON.—Duty: Pig, \$9 per ton; Railroad, 6 1/2 cts per 100 lbs; Bar, 1 1/2 cts per lb; Sheet, polished, 3 cts per lb; common, 1 1/2 cts per lb; Plate, 1 1/2 cts per lb; Pipe, 1 1/2 cts per lb; Galvanized, 2 1/2 cts per lb.	
Scotch and English Pig Iron per ton.....	\$43 00 @ \$45 00
White Pig Iron per ton.....	— @ 45 00
Refined Bar, bad assortment, per lb.....	— @ —
Refined Bar, good assortment, per lb.....	— @ —
Boiler, No. 1 to 4.....	— @ —
Plate, No. 1 to 4.....	— @ —
Sheet, No. 10 to 13.....	— @ —
Sheet, No. 14 to 20.....	— @ —
Sheet, No. 21 to 27.....	— @ —
CORRUGATED.—Duty: Sheathing, 3 1/2 cts per lb; Pig and Bar, 2 1/2 cts per lb.	
Sheathing, Yellow.....	— @ —
Sheathing, Old Yellow.....	— @ —
Boiler.....	— @ —
Composition Rails.....	— @ —
TIN PLATES.—Duty: 25 cts per cent. ad valorem.	
Plates, Charcoal, 1X, per box.....	12 50 @ 13 00
Plates, 1X, per box.....	11 00 @ 11 50
Roofing Plates.....	10 50 @ 11 00
Banca Tin, Slabs, per box.....	29 @ 30
SPRUE.—English Cast Steel, per lb.....	10 @ 12 1/2
Lead, per lb.....	7 1/2 @ 8
Sheet.....	10 @ 11
Pipe.....	11 @ 12
Bar.....	9 @ 9 1/2
ZINC.—Sheets, per lb.....	— @ —
BORAX.—California, per lb.....	20 @ 23

San Francisco Prices of Copper Ores.

SAN FRANCISCO, May 1, 1888.

We give the following as an approximate price at which copper ores can now be sold in this city. There is no sale for ores which assay less than 12 per cent. The late reduction in price is on account of the advance of freight:

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, April 18th: We bear very encouraging reports from parties who are at work in the Morning Star mine. One who formerly worked in the upper level, tells us that they are now taking out a better quality of ore than ever before.

Like the Schenectady Co., owning the Tarsbush mine, the owners of the Leviathan stock are in a scramble for the control, and the working of the mine will be delayed to June 1st, or later.

Amador County.

Dispatch, April 25th: We learn that the Butte Basin Mining Co. struck a fine layer of gold bearing cement gravel, last Saturday night, which yields from 25 to 30 cts. to the pan.

In the Coney & Bigelow mine, they are now running levels north and south; the former about 12, and the latter about 10 ft. These levels are over 240 ft. below the surface, and in each level a vein of rock eight ft. wide is exposed.

Ledger, same date: The Coney & Bigelow mill is now in full operation, with an abundance of rock to keep it running night and day. The sulphurets from the Oneida mine, worked in the chlorination furnace of Coney & Bigelow, yielded \$115 per ton.

Placer mining about Volcano, is unusually prosperous. We are informed that claims on the old Hartum Ranch are paying as high as \$100 per day.

Calaveras County.

Chronicle, April 25th: Mr. Said is making rapid progress in the development of the "Petticoat," at Railroad Flat. He is taking very rich rock from the new shaft, and is preparing to sink the one from which the former owners obtained the \$202 to the ton ore, to a depth of 100 ft., when he will run a "level" between the two, a distance of 200 ft.

It is reported that \$10 was taken from less than one pound of rock from the Mexican claim, back of French Hill, of which we spoke last week. Pennell & Co. are at work on a ledge which runs parallel with the Mexican; is much larger, and prospects equally as well.

The Water Co. are making rapid progress with their ditch, and will probably have it completed by the 1st of June. The aqueduct, which is about 30 ft. high and 700 or 800 ft. in length, designed to carry the water across the sag to Buena Vista Hill, is about ready for use.

El Dorado County.

Placerville Democrat: The Gopher quartz mine in Kelsey district, is one of the best in the county. Last week, 40 tons of the rock were crushed which yielded \$30 per ton. A portion of the rock was not of average richness. The company propose running a tunnel, which will tap the lead at 250 ft. below the surface. Most of the stock in this lead is owned by residents of Coloma. The company is now in good circumstances, and intend thoroughly developing the mine.

Los Angeles County.

News, April 21st: We were shown some specimens of gold bearing quartz from Soledad, which will compare favorably with the best in the State. The free gold can be seen in all directions. The veins are large, the wall rock well defined and compact, and the ore easily crushed. Edgerton & Scott are crushing ore by water power, with a 2-stamp mill and a number of arrastras, with gratifying results. Searles & Yates have taken up a water privilege for a quartz mill, and surveyed a ditch that will give them a fall of 60 ft. They have three veins, all showing free gold and fine sulphurets. Mr. Polk, who bought the McMurty claim, is now working it with success. Discoveries of new veins are being made daily. There is plenty of wood for timbering the mines and for mill purposes, an inexhaustible supply of water, a good road from the mines to Los Angeles, 55 miles, plenty of game and the finest climate in the world.

Mariposa County.

Mail, April 24th: Letter from Hite's Cove says: There are now about 25 men at work getting timbers and digging the foundation for the new mill, which will be 20 stamps. Hite's Cove will then be thoroughly resuscitated, with twice her former importance, as regards mills, money and men.

Nevada County.

Transcript, April 23d: At Little York, Curran & Pattison are washing off the gravel above the blue cement channel in the old Remington claims, and after the first

run of a little less than 10 days, they cleaned up \$1,300.

The engine and hoisting works of the Cunningham mine are now being removed to the Buckeye.

The Sailor Flat and Last Chance Cos. at Gopher Point, are drifting into the banks and taking out first rate gravel.

The new mill of the Nebraska Co. at French Corral, has 10 stamps, and will be used for crushing cement.

Same of 24th: A company of Frenchmen is building sulphuret works at Canada Hill, for reducing sulphurets by superheated steam.

The Pittsburg mill is running 12 hours a day, and in a short time it will be running constantly.

On the Coe mine work has been resumed. We learn that they have found the ledge and are getting out excellent ore. The mine is owned by Davis, Coe, Roberts and others.

The rock from the Rising Star, upon which the Cornish mill has been at work for some time, is all crushed and the gold cleaned up. One hundred and seventy-two tons were crushed, yielding in the aggregate \$11,610, or \$67.50 per ton. This claim is owned by A. H. Hagadorn, Hugh McCauley, Jno. Keenan and Jack and James Pierd. They are now down upon the ledge 126 ft., and have any amount of first rate rock in sight. The rock just worked was taken out in sinking.

Mining at Badger Hill promises well for the season. Parties owning the ground adjoining the English Co's, have refused \$13,000 for their claim.

Same of 25th: Shaw & Co., Glenbrook Park, on the 1st of last month cleaned up \$2,500, and a short time since found a nugget weighing 14 ozs.

Considerable mining is being done in the vicinity of Rough and Ready. In a few days work will be resumed upon the Osceola.

The claims in Deer Creek have been delayed by the late spring. Leeth & Co., and the Irish Co. are engaged in washing the tailings from last year.

Euright & Barnett have been working their claims at Canada Hill for some time past. They are now running out the cut preparatory to cleaning up. McElvy is working below them with excellent prospects.

The Banner Co. are about adding 10 more stamps. This will give them a 30-stamp mill.

The owners of the Norridgewock have recently visited this city, and have determined to resume work.

All over Bridgeport, Washington and Little York townships new companies are opening on new gravel deposits, or for the purpose of striking old ones in new places. This revival in hydraulic mining is going on throughout the entire county.

Same of 26th: Calkins & Co., on Myer's Ravine, have been washing all the winter and in a few days will commence to bottom up.

The Murchis Bros. are washing in their gravel claims. Besides having excellent prospects in gravel, they have taken out a large quantity of float rock, which is exceedingly rich.

It is proposed to commence at the South Yuba and open a bedrock tunnel in the direction of Grizzly Hill. On this line paying ground can be reached in half a mile, and worked to the bedrock. When this tunnel reaches Columbia Hill it is thought that it will be of sufficient depth to give an outlet for the claims in the Basin, through which they may be worked to the bedrock. Large mining owners at Columbia Hill contemplate the work of this kind, and when it is accomplished the gold yield will be immense.

Same of 28th: A number of experiments were tried yesterday in Marselus & Maltman's diggings with the Giant powder. An old miner, used to blasting with common powder, who had charge of the work, says the execution in two hours was equal to three days' labor with ordinary powder.

Gazette, April 25th: At Chalk Mountain, preparations are being made for a big season. The Blue Gravel Co. will build two cement mills in May.

Same of 27th: Cbas. McElvy & Co., on Little Deer Creek, have struck a very rich streak of pay dirt in some new ground.

A gentleman from Omega informs us that the hydraulic claims at that place are in full blast. Every man in the place is hard at work and there is employment for 50 more at \$3 per day. Teeple & Creamer employ 10 men. Cannou & Co. are taking out about \$10 per day to the man. They work eight hands. Blankin & Co. are taking out \$30 to the man; six men at work. Cole & Co., with four men are taking out about \$50 a day. Charley Bowman is drift-

ing. He will set in a blast of about 80 kegs of powder in two weeks. Holland & Co. are taking out \$6 per day to the man. The Prescott claims started up last week.

The facts in regard to the Grizzly Hill claims, as stated to us, are that Weight & McDonald have purchased and paid \$16,000. They are working these claims with eight men and 300 inches of water. Weight cleaned up \$8,000 for two weeks' run of his old claim. John B. Hunter, of North San Juan, has purchased the claim of Martin Yongh on Badger Hill, for \$20,000, and will commence working it immediately. Pickett & Co. cleaned up \$2,600 for 10 days' run.

Grass Valley *National*, April 23d: We were shown some rock taken out yesterday from the Empire Co's ledge, on Ophir Hill, which was literally bespangled with gold. The ledge has been found about 18 in. thick. The rock was from one of the drifts on the seventh level. The company are now running for the eighth level—having sunk some 20 ft. on the ledge. After a nine day's run 2,850 ozs. of amalgam has been taken out, which will retort about \$6 per ounce, giving the sum of over \$15,000.

We understand that rock from the Idaho mine is now being crushed at the Sebastopol mill, Boston Ravine. It is said that the rock will probably yield from \$50 to \$75 per ton.

Same of 27th: The North Star mill started up again this morning, with all its batteries. The water has been in the mine several weeks, because of a breakage in the pumping apparatus.

The Black lead, just south of the Rocky Bar, has been leased by a company of practical miners, who will go at once to work in taking out quartz.

Grass Valley *Union*, April 24th: The old Gold Hill, was yesterday thundering away with her 20 stamps. Ophir Hill rock was being put through, is to be followed by a crushing from a ledge near the Eureka, and after that a run from Massachusetts Hill will come in.

EXCELSIOR.—*Transcript*, April 23d: The workmen on the Grant mine are pushing forward the new tunnel at the rate of 2½ ft. per week, and are running three shifts in 24 hours. The rock is very hard. The face of the tunnel is now rich in sulphurets, indicating that they are very near the ledge.

Same of 24th: It will be some time yet before much can be done at Meadow Lake in the way of mining. The snow in that vicinity was from 12 to 15 ft. deep on last Sunday. The mines are generally shut down, awaiting the return of good weather.

Placer County.

Dutch Flat *Enquirer*, April 25th: On Saturday last a cave occurred in the claim of Messrs. Taylor, Moore & Co., which caused a complete suspension of operations by that company, as also by Carr & Co. The portion of the claim caved was that upon which the ladder rested that carried the pipes of the claims mentioned into the diggings. The damage sustained by these claims will amount to some one or two thousand dollars, besides the loss of much valuable time in the midst of the favorable season of the year.

Mr. Osmyn Harkness, after a run of sixteen days in his claim near this place, cleaned up the sum of \$4,478. This is about an average of the yield of this claim. The expense of working the claim for the time stated, amounted to a fraction over \$2,000, leaving a net profit of \$2,300.

It is with feelings of more than usual gratification, that we are enabled to announce that the Blue Lead has been struck in this vicinity. This has been, it appears, a well established fact for several months, but the parties who were knowing to the discovery, for reasons of their own, thought best not to make it public until the present time. It appears from what we can learn, that Mr. Taef sunk two shafts in his diggings on the north side of the town last year, in one of which he found a strata of blue cement some 25 ft. in depth, which prospected from 12 to 25 cents to the pan. This was all our town needed to give it an impetus. We have these facts from Mr. Taef himself, and three or four other persons who have visited the shaft and seen the gold, men whose veracity cannot be doubted. The time is not far distant when mills will be in operation all over our hills, and the music of the stamps he heard far and near.

Auburn Stars and Stripes, April 23d: We learn that work upon the Rising Sun quartz claim, near Colfax, is being prosecuted with much vigor, and that at the depth of 118 ft., rock has been taken out that pays from \$100 to \$150 per ton.

Plumas County.

Correspondence of the *Plumas National*, April 25th: That there is a body of silver ore in sight, in the Enterprise mine, is past

peradventure. All the machinery for erecting a mill is on the ground, and there is every indication that in a few months the actual value of the ore will be determined. On the opposite side of the valley, all the mills with one exception, are pounding away in a lively manner. Judkins & Kellogg's mine never looked better, while the Caledonia is, apparently, "sterling." The Indian Valley ledge is supplying rock for both mills. In its most eastern drift, paying rock has been struck.

Siskiyou County.

Yreka Union, April 18th: The miners on Indian Creek are at work, and the yield of some of the claims is worthy of the early days. Messrs. Miller & Baker, for thirteen days' run of their hydraulic, cleaned up \$1,000. Mr. Rushmore, for 11 days' run, cleaned up \$1,800.

Cottonwood is likely to be more lively the present season than it has been for several years. The success of Shaft, Smith & Co. in working the Klamath River last year, has given a new impulse to river mining. Instead of a single claim, this year, there will be eight or ten worked.

Tuolumne County.

Sonora Democrat, April 25th: The Enterprise Ditch, which runs along the banks of the Tuolumne River to Don Pedro's, has recently been purchased by Messrs. Chas. & George Anderson. They have a good bank claim at Indian Bar and are preparing to work it by hydraulic power.

The Ruffle-tail mine at Whitman's Pass, has been purchased by Jas. W. Tulloch. The mill is now running, and a full force of men working on the mine. The rock, as far as the vein is developed, will pay \$100 per ton.

At Moccasin Creek, there are still a few good claims owned by white men, but Chinamen constitute more than half of the population, and are working the flats and bars where 75 cents per day can be made. There is nothing doing at present in any of the quartz claims on the "Mother Vein" which runs along the east side of Moccasin Creek. The "Wheeler-Hill" mine has had just work enough done upon it to keep it from being "jumped." We presume such also is the case with the Rising Sun, King Phillip, and all the others. Those mines are unfortunately owned by parties who have not a sufficient amount of capital to develop them.

Yuba County.

Marysville Appeal, April 25th: The Rattlesnake Co. at Brown's Valley, have ordered 50 pounds of Giant Powder, and do not hesitate to pronounce it a complete success in tunnel blasting. Mine owners from various parts of the State are visiting the mills to witness the *modus operandi* of the new explosive agent, Giant Powder.

Watson, of the Brush Creek mine (Sierra County) has ordered manufactured at the Marysville Foundry, a 60-horse power engine and other mining machinery for a 10-stamp mill.

ARIZONA.

Miner, April 11th: The Sterling mill, at last accounts, was not running.

The Aztlán mill, which has been removed to the Chase lode, will probably commence operations by the 1st of May.

W. Smith has gone to San Francisco to procure five more stamps for the Wickenburg mill, in which he is interested. Both mills are running constantly, and doing as well as usual.

COLORADO.

Register, April 9th: Mr. Reichenecker has commenced fitting up the Montana mill in this city, and will have it ready to run in about a week on custom ore.

Wm. Allen is cleaning out the Rosecrans lode on the Casto Hill. The shaft is 50 ft. deep. This mine paid well from the surface. The ores run as high as \$450 per ton, in stamp mills.

Wm. Stocks is working the Channey lode in Lake Gulch. He is down about 10 ft., but is taking out very rich quartz and dirt. He is carrying it on his back about a mile, and manages to pan out \$3.50 a day. He had some of the quartz run in a mill, which yielded \$350 in gold.

We were shown to-day, 1½ ozs. of very coarse gold taken from a claim on Chicago Creek by one man in five days. He had to dig his dirt from a drift, pack it in sacks 40 rods, and wash it in a rocker. The dirt was taken out of the bedrock, on a claim that was worked to the bedrock in '61.

Messrs. Hamau & Miller, on the Kirk lode, Quartz Hill, just below the Alps, are now down 60 ft. and have got everything arranged. They have from 18 to 20 in. of excellent copper pyrites.

We understand that the Fairmount Co. started up a portion of the machinery in their mill in Hukill Gulch, last week. Their mill building is three stories high, with a stone basement. It is designed for 20 ar-

tras, only two of which have been started. The ore is ground in a Chilean mill, in the third story, from which it is conducted to the arrastra.

Last week, Bonzie & Co. on Chicago Creek, Idaho district, cleaned up eight ozs. from 2½ days' work by five men. H. Scovel & Co. 1½ ozs., from four days' work by two men. Mead & Blanchard, from four days' work, 3½ ozs. Hunter & Medley on South Clear Creek, on Saturday, sliced two hours and got seven pwts. Glenfield, Wright & English, and Jos. LeGould, below them, have dirt from 8 to 38 cts. per pan. Gus. Reeder & Co. on Bull Bar, from four to ten pwts. per day to the man. P. Mickel working alone, just below them, on Saturday last got 15 pwts. Deau & Co. on Elk Horn Bar, average five pwts. per day to the man.

Denver News, April 8th: Mr. D. C. Travis showed us yesterday a piece of quartz from the Rising Sun lode, Granite district, Lake county. The free gold was to be seen all over it. The specimen was taken from the shaft at a depth of 30 ft., at which depth there is a vein of ore 30 in. wide.

We understand that the celebrated Five-Twenty lode, of California Gulch, has been sold for \$40,000, providing the capitalists find it as rich as represented.

Boulder News: The Ni-Wot Mill, in Ward district, has started up again. A copper lode has been discovered on Four-Mile Creek, above Maxwell's mill. Haswell and Henry are about to start their mill in Ward district, on ore from the Aetna lode.

Tribune: E. W. Colih, of Jim Creek, has shown us two bars of silver bullion, weighing 108 ozs., that had been extracted from 2,500 lbs. of unassorted ore from the United States Bank lode in Boulder county. This lode is a branch or spur of the Roh Roy and Hoosier lodes.

DACOTAH.

Cheyenne Record, April 4th: Letter from Dale City: The excitement is raging high, and miners are continually flocking in. Many tunnel sites have been claimed, and a number of men are already at work. Some of the ore assays very high. Every one here looks at the place in the light of a great mining town and I do not think they will be disappointed.

There are extensive gulch diggings in Four Mile Creek, Boulder county, which pay from \$3 to \$6 to the man. A large number of Coloradans are fitting out themselves with mining implements preparatory to their departure for that place.

Reports from the Sweetwater mines are encouraging. New leads are found daily. News concerning the late rush from Sweetwater to the mines in the Wind River mountains is anxiously awaited. The locality is 80 miles from South Pass City. The excitement was caused by one of Wash-akee's band of Snakes, who are wintering in the valley having exhibited gold which he declared he had washed there.

Sweetwater Mines, April 13th: An extensive tunnel claim has been located in Hermit Creek to run northwesterly with the hope of cutting the Careso ledge. It is owned by Messrs. Van Dyke, Cliff, Temple, Whitman, Worley and Martin, who commenced work on it April 7th, intending to drive it forward with all possible speed.

The Salt Lake Telegraph has a letter from South Pass City, from which we quote: Money is scarce here at present, there being few surface diggings, and what there are do not pay. You know quartz does not, until mills come into the country; money will therefore be scarce for some length of time to come. A great many of the lodes you hear so much about, when you come to look for them cannot be found. The country is full of stakes; a little quartz a stake, and a big name make a mining claim a big thing by the time it gets to Salt Lake City.

The Silver Bend Reporter gives the following extract from another South Pass letter, dated March 31st: I arrived here on the 26th inst., after being on the road from Salt Lake City 19 days. The roads were horrible—two to five ft. of snow all the way from Echo Cañon. From all I have seen of the country I think it is the highest hill out. I hope my opinion of the country will not prove true, but there were 75 of us who came here together and they are all of the same opinion as myself.

IDAHO.

Owyhee Avalanche, April 18th: We understand that Grayson, Beachey & Co. have engaged the Sinker mill to work Golden Chariot rock, and will start it as soon as the road is in proper condition for hauling thither. The greater portion of the way is now bare ground and dry.

Placer mining has commenced in the creeks and gulches. As the sleighing is done, quartz hauling has nearly ceased for the time, but will soon be resumed on wagons. The late unfortunate mining war,

we are happy to say, is at an end, and both companies are taking out large quantities of ore richer than ever.

In Flint district, the Rising Star Co. are energetically pushing forward work on their mine, which we are told is 6½ ft. wide and yielding very rich silver ore.

NEVADA.

Humboldt.

Register, April 25th: Robert McBeth and party pulled up stakes and struck out for Battle Mountain district in the early part of the week, fully prepared to test on a large scale the ores of that district. Arrangements have been made at the Goleonda mill to work a large quantity of the rock, and ox teams were taken up by them to haul enough to the mills to give the mines a thorough and satisfactory test. The district is within a few miles of the surveyed line of the Central Pacific Railroad.

Work has been resumed on the DeSoto mine, under the supervision of Mr. James Hendra. There is enough ore exposed in the mine to justify its owners in erecting reduction works. When the company does so, it will be able to make clear money, but so long as it costs \$70 per ton for milling—to say nothing about the stealings—it need not expect to make much headway. We can see no good reason why a splendid success should not be made in this mine if its owners will go to work systematically.

A Unionville letter to the Gold Hill News of April 27th, has the following: "None of our people have any idea of going north or to Sweetwater. Just wait until the railroad comes and we'll show you, not one mine or one lode, but hundreds of them pouring a steady stream of silver, gold, copper, lead, antimony and sulphur through that great national artery. Our people are determined to stick to Humboldt. Not a day passes but I hear men asking each other, will there be a market for ores at the dump or on the railroad, when it shall come? What are ores containing 20 per cent. of copper and \$50 per ton in silver worth? We know nothing about these things, but this we do know, that if persons who understand buying ores will give our miners any assurance that a fair price will be paid for all the ores that they will dig, a million of tons will be brought to the surface within the next 18 months."

Reese River.

Reveille, April 20th: Reveille district, about 150 miles southeast from Austin, will in all probability become the scene of considerable activity in the course of the present year. Negotiations are on foot between some of the oldest locators in the district and a New York company, which may result in the transfer of a large amount of valuable ground. If the sale should take place it is the intention of the company to erect an efficient mill in the district next fall. The district has produced large amounts of ore from the surface of a quality rarely equaled, and an efficient and well managed mill would make it a valuable bullion-producing region. Heretofore nearly all of the ore produced in that district was hauled to the mills for reduction, and we have yet to hear of the first instance where the ore did not pay all the expenses of mining, transportation and milling, and leave a substantial remainder for the miner.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia Enterprise, April 22d: The Sierra Nevada Co. have commenced work upon their main shaft with the intention of sinking it 200 ft. deeper, when a drift will be run to the eastward to the ledge, probably 400 ft. The last drift cut the lead 300 ft. from the shaft. Where it was cut the vein contained a considerable amount of metal, but it was much diffused; at the depth at which the new drift will strike the vein it is thought the metal will be sufficiently concentrated to pay for milling.

Same, April 23d: The new Ophir shaft is now down over 200 ft. Thus far it has not been necessary to blast, the rock being of a nature to be worked by means of picks, gads and sledges. No drift will be driven from the shaft before a depth of 800 ft. shall have been attained. The pump works to perfection and easily drains the shaft. Three shifts of four men each are being worked in the bottom of the shaft, and about 2½ cords of wood are consumed per 24 hours in running the engines.

The United States Co. is now sinking a large shaft in a line between the works of the Ophir and Sierra Nevada companies. Their shaft is now down some 33 ft. and will contain three compartments 4½ by 5 ft. in the clear. The rock at present is not sufficiently solid for blasting, and is taken out with picks and gads. The company expect to strike their lead at a depth of 500

ft. below the surface. A donkey engine for hoisting and pumping will be set up at the shaft as soon as it becomes too deep to be worked to advantage by means of a windlass.

April 26th: The Imperial-Empire M. Co. intend to ventilate the drift from the bottom of their new shaft by means of air forced down through a two-inch iron pipe with an apparatus attached to the engine on the surface.

Thirty tons of ore from the Columbia mine, situated in Spring Valley, below Silver City, worked a few days since, yielded the handsome return of \$1,045.37. Gold predominates in the ore.

The following is a statement of the amount of bullion shipped or received for assay during the past week: From the office of Wells, Fargo & Co., in this city, there were shipped 3,976 pounds of assayed bullion, valued at \$75,176.03; from the office of Wells, Fargo & Co., Gold Hill, 5,107 pounds, valued at \$126,500.11.

Trespass, April 25th: In the Sierra Nevada, the work of sinking the shaft 200 feet deeper was commenced on Monday last, with a good supply of wood and timber on hand. The work has progressed rapidly during the week, the rock being soft, and the workmen being able to sink about three feet per day. In the United States the shaft being sunk to strike the east ledge is progressing favorably. In the Ophir the rock in the shaft is still very hard. In the Gould & Curry the new pump is actively at work, but there is still a considerable quantity of water in the mine. In the Savage, the fifth station north, shows some improvement—otherwise there are no changes to note. The Hale & Norcross shaft is still being sunk, but no changes worth noting have taken place. In Chollar-Potosi, station timbers have been put in position in the 1,000-foot level, but drifting has not yet been commenced. In Bullion, the drift is now thought to be within four ft. of the ledge. Alpha is not being worked. In Eschewer, no work is being done in the mine. The drift west from the new Imperial-Empire shaft had reached a distance of 189 ft. this morning. The end of the drift was in soft clay, with indications of water, and the announcement that the ledge has been struck is momentarily expected. In Yellow Jacket, the work of sinking is still being prosecuted, with about 100 ft. more to go before drifting. The drift south is looking well. In Kentuck, the shaft is now down 40 ft. below the old sump, and is being pushed at the rate of about three ft. per day, the rock being quite soft. The mine is looking first rate. Shipment of bullion for April up to the 20th, \$46,546.27. Crown Point mine is looking well, with 10 ft. of fair ore in the 800-foot level. The receipts up to the 19th amounted to \$54,000 for the present month. In Belcher, drifting is still being prosecuted. In Segregated Belcher, the mine is now about clear of water, and men are engaged in timbering the 500-foot level. Overman, no change to note. About 100 tons of ore is being crushed daily, but the yield is not yet ascertained. In Lady Bryan, about 60 tons of ore per day is being crushed, but the yield is not so good as was expected.

Gold Hill News, April 21st: The Rogers mine, Flowery district, after a repose of two or three years, is about to be active again through the application of new hoisting and pumping machinery, and a change in the administration of affairs. There is said to be a large amount of valuable ore in this mine, but some of it contains a large amount of galena and other base metals. It is proposed to send a quantity of the richest to San Francisco to be subjected to the smelting process.

NEW MEXICO.

Santa Fe Gazette, March 28th: Mr. Bulard, a California miner, returned by last night's coach from Socorro. He had been to the Magdalena Mountains, in that county, examining the John D. Perry and Magdalena lodes of the Rio Grande Mining Co. He is especially impressed with the John D. Perry.

Letter from Pinos Altos to the New Mexican of March 31st: The excitement is beginning to get up to a fever point in this place. The Pacific lode is improving in its yield of gold. The quartz which is now being crushed at the mill of the Pinos Altos Mining Co. is said to pay over \$100 per ton. The Arizona lode is being worked by many new companies, since the quartz has been found to yield over \$100 per ton. The lead is in Gold Mountain, a few hundred ft. east of the Pacific lode. The Langston lode has also proved good. That is also situated in Gold Mountain, about one mile southwest of Pinos Altos.

Messrs. Anderson, Gilbert, Tompkins, and David Winterburn have prospected ex-

tensively in and around Pinos Altos during the past 15 months, and have located 10 gold and silver bearing lodes. The same party have discovered four gold bearing quartz leads in said Gold Mountain which are being worked.

OREGON.

Sentinel, April 18th: Col. Drew started the machinery of the Occidental quartz mill on Sunday last.

The miners at Sterling will commence cleaning up in a couple of weeks. They have the most flattering indications of a big clean up. In the Saltmarsh claim, two nuggets were picked up last week, one of which weighed a little over \$45—the other nearly \$40. We learn that the Ives lead is now paying handsomely. It was purchased about a year since by a party from San Francisco, who, from some cause, became discouraged. It is being worked with an arrastra, and its owner appears well satisfied.

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Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1886.

Mr. C. T. Ramey is our duly authorized agent for Sacramento County. Nov. 23, 1887.

Dr. L. C. Yates is our duly authorized traveling agent. July 6, 1887.

Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1887.

San Francisco:

Saturday Morning, May 2, 1888.

Notices to Correspondents.

CENSUS.—It was a great error on the part of a morning cotemporary to state to its readers that China was only three times larger than California; in place of which, though confining the area within the limits most assuredly governed by the reigning dynasty, and excluding the vast territories of Mongolia and Manchuria, the area of China proper, is, nearly, if not quite, ten times more extensive than California, viz., 1,640,000 square miles, with an estimated population, according to the most reliable account, of 210,000,000 inhabitants,—or an average of 125 to each square mile, or a trifle less than the population of Massachusetts to its area. Because the rich alluvial lands of the seaboard is densely peopled and enabled to support this great population, it by no means follows that the more mountainous portions of the empire, the cradle of its great rivers, are by any means over-peopled. Belgium possesses a population of 350, and England of 250 persons to the square mile. The least populous county of the latter country, Westmoreland, has only a population of 75 to the square mile, although partly a manufacturing county; Falstaff's men in Kendal Green (the county town) must be in the remembrance of many of our readers. Westmoreland is a cold, mountainous region. Herefordshire, however, is even a less manufacturing county than Westmoreland, but possesses an exceedingly rich soil,—more so than any equal area in England or Wales, yet the population falls short of 140 to the square mile.

MOLASSES.—Cane sugar at the ordinary temperature but more rapidly at a boiling heat, reduces the protoxide of copper when in the presence of an alkali, either not at all or only very slowly, while if grape sugar is present, a precipitate of sub (red) oxide of copper is thrown down, after a few hours in the cold, and almost immediately on boiling. The red oxide of copper thrown down in the first recited case, is no doubt occasioned by the conversion of a part of the cane into grape sugar or glucose.

TEMBLADO, Los Angeles.—Fournet published an able treatise on the magnetism of rocks and minerals. According to Durochez, granite is rarely magnetic, but out of thirty-eight specimens of diorite, trap, basalt, trachyte and lava, thirty-four affected the needle, a result appearing to be due to small amounts of iron oxide of the titanite or magnetic variety.

BLOW-HARD, Sonora.—Owing to the loss sustained by the absorption of silver by bone-ash cupels, when cupelling by means of the blow-pipe, Mr. W. Mather in Siliman's journal [2] III 409, recommends the employment of finely powdered mica, which Mr. M. states he has found from experience to absorb much less silver than bone-ash.

B. S.—A fragment of carbonized wood was found in the rock-salt of Wieliczka which exhibited the structure of wood, though presenting a lignitic appearance generally. The subject occasioned much discussion in Vienna, in the course of which discussion many ideas respecting its probable origin were, we conceive, rather far-fetched; among which, we consider, was that which referred the carbonization of the wood to heat alone.

If one is not entirely blind, he will see at a glance that the best thing to improve his eye-sight, is to purchase his spectacles of C. Muller's No. 205 Montgomery street.

The Wheel Question—Finale.

The *Scientific American* quits the field in what it would fain make its followers believe is a blaze of glory,—but is in fact a retreat, under cover of the increased obscurity in which the subject is for the moment involved by the smoke of its parting shot. Suddenly changing front, it takes up a form of the question which it plainly never contemplated at the start, viz., that in which the two wheels are not in the same plane, but in planes respectively at right angles to each other. This form has been repeatedly referred to by its correspondents, but by the same dismissed at once as one which, although perhaps admissible under a strict construction of the question, was one not under discussion. Not only has this fact been always passed by without remark by that journal, but it moreover explicitly committed itself to the discussion of the case in which the wheels were in the same plane, when it said, in the beginning, that "L. M." by his diagram, proves himself wrong." "L. M.'s" diagram, it will be remembered, represented the wheels in the same plane. The *Scientific American* therefore long ago virtually closed against itself the very loop-hole of escape, of which it now feebly attempts to make use.

The two cases are, in one sense, different from each other. This may be shown as follows: 1st—The center of a rolling wheel of given size, (we address ourselves to such readers,—and such only,—as can understand the difference between the words *rolling* and *revolving*.) describes a line in space; which line is longer or shorter, according to the distance which the wheel rolls. 2d—The greater the distance the wheel rolls, the greater the number of revolutions which it makes upon its own axis. 3d—Consequently, the longer the line described in space by the center of a rolling wheel of given size, the greater the number of revolutions upon its own axis which that wheel makes. Now the line described in space by the center of a wheel rolling around a fixed wheel of the same size, is a circle, which is twice as large in the case where the two wheels are in the same plane, as in the case where they are in planes at right angles to each other; it therefore follows, that in the first case the wheel makes twice as many revolutions upon its own axis as in the last. The two cases are therefore,—as we have said,—unlike each other; and so far as regards what we will call the *horizontal* axis, but one revolution is made by the moving wheel in rolling once around a fixed wheel of the same size, *which is in a plane at right angles to its own*. But, as we before remarked, it has been distinctly understood throughout, by all parties,—including the *Scientific American* itself,—that this is not the case which has been under discussion.

We might go farther, and show that even in this case, it might be said that the moving wheel makes two axial revolutions; inasmuch as it really revolves once upon what we will call its *horizontal* axis—or the axis perpendicular to its plane,—and once upon what we will call its *vertical* axis—an axis coincident with its plane;—presenting as it does, in its course, both of its surfaces to an observer outside of the circle which is its orbit, or—which is the same thing—presenting always the same surface to an observer at the center of that orbit. In fact, the only difference between this case and the one in which the wheels are in the same plane, is, that one of the two revolutions on the horizontal axis, which take place in the last named case, is, in the first, *transferred*,—so to speak,—to the vertical axis. This fact is pointed out by the *Scientific American* itself, while presenting its level-wheel drawing in its issue of March 21, when, with charming simplicity, it tells us that for each revolution of the movable wheel about the fixed one, a cord will be wound once on the upright axle, and another

wound once on the horizontal axle; evidently quite unconscious that the fact is a damaging one to its own case,—for the two motions must necessarily both belong to the moving wheel, since, by the terms of the question, every part of the other wheel is *fixed*. The two winds of the cord which are in one case both on the same axle,—if there is one,—are in the other divided between the two axles; a change made necessary simply by the change in the form of the model. In fact, in every case supposable under the terms of the question, the moving wheel makes two axial revolutions; one on an axis perpendicular to its plane—that is, its "own" axis,—and one on its vertical axis. But this vertical axis changes as the angle between the two wheels varies. When the wheel is in the same horizontal plane with the fixed wheel, its vertical axis coincides with its "own" axis,—is in fact identical with it; so that, in that case, the wheel actually makes both revolutions upon its "own" axis. If the outer edge of the wheel be raised in any degree, its "own" axis forms an angle with its vertical axis,—which of course always remains upright; this angle gradually increases as the edge is gradually raised, until, when the wheel reaches an upright position, it becomes a right angle. The vertical axis then coincides with the plane of the wheel; and the two axial revolutions are distinctly separated,—and may be easily demonstrated by a simple mechanical arrangement, somewhat similar to the level-wheels of the *Scientific American*.

We might therefore, we say, assert with truth, that even in the case supposed by the journal aforesaid, the wheel makes two axial revolutions. But we refrain from doing so; because, in the first place, it is not the case which has been under discussion; and in the second place, it might possibly be thought a quibble,—almost as objectionable as the "artful dodge" executed by the *Scientific American*, in suddenly assuming it to be the case. The grand trouble with that journal was, in the beginning,—as we have once said was the case with its followers,—an inability to understand the difference between axis and axle; owing, of course, simply to its want of familiarity with the language in general use among geometers. But for this it would of course not have placed itself in such a disagreeable position.

In the case of the india rubber marker, and the other similar devices which the aforesaid journal has brought forward in illustration and support of its position, the fallacy is too plain to be discussed. In all these, the handle carrying the axis must be carried around with the wheel; which is equivalent to a second revolution in space, of that wheel upon its axis.

We are quite willing that the *Scientific American* should have all the benefit of the elegant and dignified style in which it takes leave of the subject; and the "tremendous applause from the gallery" which will probably greet the singularly appropriate picture of the broken wheel-barrow and its unhappy occupant. The good taste of the thing will no doubt be highly appreciated by nearly every member of the little group of grinning "one-ists," whose portraits are therein given. We do not suppose, of course, that the said group constitutes the *Scientific American's* entire force of retainers; it is quite probable that there are "a few more of the same sort."

Asking pardon of our readers for insulting their intelligence by again taking up the matter, we close with an extract from the last number of the *American Artisan*,—in the substance of which we concur: "As it is now settled in the minds of the great majority of all intelligent persons who have considered the question, that those correspondents who are sneeringly alluded to by our 'only reliable' cotemporary as 'two revolution philosophers' are right, and as more space has been already devoted to the subject than its importance demands, we shall now dismiss it."

The Mechanics' Institute Fair.

At a special meeting of the Mechanics' Institute, held at their rooms on Post street, on Thursday evening last, the Board of Directors were duly authorized to proceed to raise and expend the necessary funds for the erection upon Union Square, of a suitable building for the proposed Fair in August next. The funds for this purpose will be raised by private subscription among the citizens of San Francisco, to be repaid out of the first net receipts from the Fair. After the adjournment of the general meeting, the Board of Directors assembled at their room and adopted a plan for the Fair Building, which had been prepared by Mr. William Patton, architect. This plan was one of nine which had been submitted for competition, and calls for a structure in the form of a parallelogram, fronting 180 feet, by 350 in length. Additions will be made for engine and boiler room, and for kitchen and offices. The eaves of the main building will be 28 feet high, with a nave in the center 40 feet high to eaves, and 85 feet wide by 285 long, around the inside of which will be a gallery from which the entire promenade below can be witnessed. In the center of the nave will be an open space 65 by 50 feet, which will contain a fountain. In the north-east corner of the main building there will be a Social Hall, 60 by 35 feet. The entire roof will be shingled, and made perfectly secure against rain. The building will be well lighted from above. The highest portion will be only 87 feet from the ground, thus greatly reducing danger to contiguous buildings in case of fire. The building will cover some 12,000 square feet more than was occupied by the previous one on the same place, and will probably be built and made ready for receiving goods for a trifle less cost.

We understand that over \$14,000 have already been subscribed,—fully one-half of the entire amount needed. The proposed exhibition promises to be far the most valuable and attractive of any yet undertaken on the Pacific Coast,—and will doubtless result in a large decrease of the present heavy debt of the Institute.

A NEW FEATURE IN THE INSTITUTE.

We would take occasion in this connection, to mention that the Directors of the Institute propose to hold semi-monthly meetings in the lecture room of the building, for the purpose of having matters relating to the arts and sciences, inventions, public works and the various industries, etc., read before the Association, in the form of papers; somewhat after the plan adopted by the Polytechnic Society of the American Institute. It is proposed to have all such papers open to discussion and criticism, and to facilitate practical inventors and others to place before the Institute their claims to merit.

Any gentleman, member or otherwise, will have the privilege of addressing the Association on suitable subjects. The President, or some member of the Board of Directors, will be at the rooms of the Institute every Wednesday evening, where they will be pleased to meet any gentlemen who may have papers which they would like to read, or inventions which they may desire to place before the Institute.

NEW ASSAY FIRM.—By reference to their card, in another column, it will be seen that Messrs. Kustel & Hofmann have succeeded Mr. Molitor, as metallurgists and assayers at No. 611 Commercial street. Mr. Kustel, is well and widely known throughout the Pacific coast, through his published works on "Nevada and California Processes of Silver and Gold Extraction," and the "Concentration and Chlorination of Gold and Silver Ores." The new firm is prepared to attend to all orders in mineral assaying and analysis. Gold and silver ore worked in small lots up to 100 pounds, by chlorination and other processes.

Type Metal.

The Montezuma Smelting Works of Humboldt county, Nevada, are shipping to this city large quantities of metal peculiarly adapted for the manufacture of printing type. It is a new product for this coast; and illustrates the progress in developing the vast resources of the country, that is steadily going on in all branches of industry.

This metal is an incidental product, obtained in the separation of the silver contained in the ore from the lead and antimony with which it is combined. Its freedom from other metals generally found in these ores, renders it at once perfectly adapted to the type-founders' use. Messrs. Faulkner & Son, of this city, are now using large quantities of it in the manufacture of type,—and henceforward will rely upon their works for their entire supply.

The metal now being shipped is composed of lead thirty, and antimony seventy parts; but it is quite as convenient to produce these metals in any other proportions; and the alloy will require only the proper admixture of other metals entering into the composition of type, to be ready for use.

The type manufactured from this metal is much harder than that imported, and quite as tough; and will produce a clear and distinct impression on New York made type, without being in the least defaced. This fact indicates its great superiority,—and although it is apparently not so highly finished as imported type, the impression made by it is clear and handsome, and the type of much greater durability.

The price at which this metal is laid down here will effectually shut out Eastern and foreign importations to this market; and not only that, but most likely give us the entire supply of the Atlantic market. A shipment of some twenty tons is already on the way to New York, for the type foundries in that city.

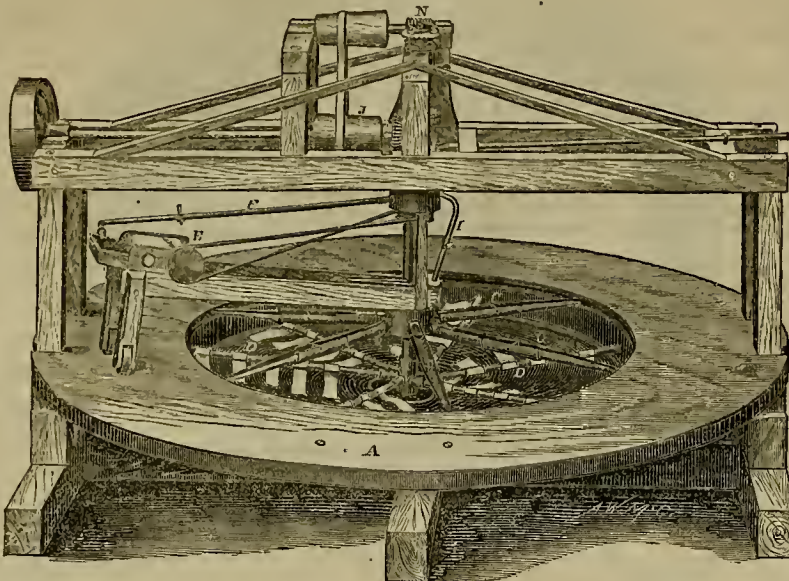
Our iron foundries and machine shops are also using it for babbit metal; as it fully supplies the place of that important composition in relieving the friction of machinery. It is shipped in pigs of about seventy pounds, and each bears the stamp of the works—"Montezuma." J. Bluxome, Esq., metal broker, corner Washington and Battery streets, is agent for its sale. Within the next three months the Central Pacific Railroad will be completed to Orona, and within a mile and a half of these works; thus opening a cheap and speedy transportation for all the products of this celebrated mine.

CERIUM.—This metal has lately been separated by Wöhler, from the double chloride of cerium and potassium by means of sodium. Formerly it was prepared by subjecting pure protochloride of cerium to the action either of potassium or sodium. Cerium is found in comparatively rare minerals, and generally associated with the metals lanthanum and didymium. Cerium tarnishes in air at ordinary temperatures, and displaces hydrogen in boiling water. The pure metal is therefore valueless, except as a reagent. It forms numerous oxides and salts, none of which have, as yet, been used in the arts. Cerium has a darker blue than lead, and is only about one-half as heavy.

ALUMINUM FOR ROOFING.—A writer in the London Mining Journal suggests the use of iron plates coated with aluminum as a substitute for roofing slates. He says they could be made of any size, and would not cost five dollars per ton more than the uncoated plates; and moreover, since they could be bent to fit, and need not be laid double, like slates, five hundred such plates would cover as much surface as one thousand slates. Again, the latter would cost fifty dollars, and weigh three and a half tons; while the former would weigh about as many cwt., and cost, say, sixteen dollars.

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For Saving Gold and Silver Sulphurets.



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One Machine, costing about \$1,400, is sufficient to work the Sands from 25 to 30 Stamps. But very little power is required.

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The illustration given herewith, was fully described in the Mining and Scientific Press of March 21, 1868.

One of these machines may be seen in constant operation at the Eureka (Watt's) mine in Grass Valley, where it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill, near Virginia City.

For further information, apply to THOMAS N. PAINE, Grass Valley, California.

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13v16csw

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San Francisco, May 1, 1868. **GODDARD & CO.** 18v16of

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" CORNELIA.....CAPT. W. BROMLEY

" JULIA.....CAPT. E. CONCKLIN.

Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light draft steamers for Marysville,
Colusa, Chico, and Red Bluff.
Office of the Company, northeast corner of Front and
Jackson streets.

13v12

B. M. HARTSHORNE,

President.

International Hotel,**JACKSON STREET,**

BETWEEN MONTGOMERY AND KEARNY STS.,

SAN FRANCISCO, CAL.THIS OLD ESTABLISHED HOUSE IS IN PERFECT
order for the accommodation of guests. Persons seek-
ing comfort and economy will find this the best Hotel in
the city to stop at. The Beds are new and in good order,
and the Rooms well ventilated. The Table will always be
supplied with the best in the market.

Prices varying from \$1.50 to \$2 per day for

Board and Room.

FINE BATH HOUSE AND BARBER SHOP ATTACHED

TO THE HOUSE.

Teams belonging to the House will be in attendance
at all the boats and cars to convey passengers to the House
FREE OF CHARGE, and to any part of the city for 50 cents

1v12

F. E. WEYCAUT, Proprietor.**No More Runaways!****CHAPMAN'S****AMERICAN HORSE HOLDER.**Holds your horses; teaches runaway horses to stand still;
can be put on any carriage, wagon or dray.

Your Teams are Always Safe.

The State Right of the above valuable invention will be
disposed of at figures that will afford the purchaser a
chance to realize a fortune. For particulars, apply to

WM. MACDONALD,

Office of Travelers' Ins. Co.,

121 Montgomery st., San Francisco.

17v16-2m

COOSE BAY COAL.

The Cleanest Burning and Most Economical

Fuel on the Coast.

Sold by all dealers in this city and Oakland.

EDWARD FLANAGAN,

Agent Coose Bay Coal Company,

No. 606 Battery street, near Jackson, S. F.

7v16-3m

TO SPORTSMEN.

THE UNDERSIGNED, HAVING BEEN APPOINTED

Sole Agent for the Pacific Coast for the sale of RUF-

FERT'S BREAK-LOUING SHOT GUN, which discharges

four shots in two seconds, circulars will be furnished by

applying to or addressing

HENRY EITEL,

111 Second street.

Or Lock Box 1172 P. O., San Francisco. 18v15 21m4m

CARD.

THE UNDERSIGNED, SINCE DISPOSING OF HIS

Gallery on Montgomery street, has seldom been in the

street without being asked where the best photographs

were taken. Now, for the benefit of his friends and the

public generally, he would recommend them to go to the

COSMOPOLITAN ART AND PHOTOGRAPHIC GALLERY,

No. 124 Kearny street, now owned and occupied by Messrs.

HALSEY & SCRIPTURE. Both of these gentlemen are

professional photographic artists—one of them having

been in the business more than twenty years—and cannot

be surpassed by any one in the State.

Persons wishing photographs taken will do well to give

them a call. The above named gallery is one of the finest

and most convenient in San Francisco, it being situated on

the second floor, and its proprietors are the most accom-

modating and gentlemanly men in the business.

N. B.—Prices as low as at any other Gallery in the city.

Solar Printing for the Trade.

Also Stereoscopic Views of California Scenery, at whole-

sale and retail, at the Cosmopolitan Art and Photographic

Gallery, No. 523 Kearny street.

HALSEY & SCRIPTURE,
Proprietors.**Mechanical Drawings.**

Persons wishing Mechanical Drawings can obtain the

services of competent draftsmen, by applying to this

office.

UNPROFITABLE ENGINEERING.—From the
United States Railroad Register for March
21st: "When the New York and Erie Rail-
road, under the stimulus of the State loan,
was begun at the Dunkirk terminus, and
was in progress throughout almost its en-
tire length in 1841, 90 miles of it, be-
tween Binghamton and Hornellsville, was
'piled' with upright posts, on which the
road was to rest, to be filled in underneath.
To effect this, an ingenious machine was
invented and put in operation, to drive and
saw off these piles with dispatch; and it is
melancholy to turn to the 'journals of the
day,' and see the enthusiastic records of
the daily progress of this wonderful driver
and cutter, as though every post driven
was an additional support on which was to
rest the future fortunes of the villages
along the route! Ninety miles were thus
posted up, when the treasury of the com-
pany became embarrassed, the work was
stopped, and the road at the point of death,
when it was resuscitated by calling in new
nurses and physicians. When the work
was again started, new and improved modes
of engineering showed that it would be
actually cheaper to throw aside the piled
route as useless, and run a new line. This
was done, and the track was laid as it now
is, leaving the said outposts to remain un-
used—a homely imitation of a Roman via-
duct, stretching across a wide campaign."SIMPLE CLOCK-WORK.—An electrical clock
in the rotunda of the Philadelphia Mer-
chants' Exchange has a running gear of the
simplest description, consisting merely of
two cog wheels and a ratchet wheel. The
driving power is supplied by a weak gal-
vanic battery, the currents from which,
transmitted through two galvanometer coils
placed one on each side of the clock-case,
act upon steel bar magnets set within the
pendulum hall. The latter swings between
the two coils, so that when one of them is
positively charged, the ball is attracted until
by contact it becomes similarly electrified,
and, consequently repelled, then swinging
over to the negative coil, it becomes nega-
tively charged, again repelled, and thus
the vibrations are kept up indefinitely, or
as long as the battery continues working.
The alternate positive and negative charges
are made and broken by a simple slide-bar
moved by a wire pin on the pendulum rod.NOW AND THEN.—Previous to the inven-
tion of the cotton gin by Whitney, cotton
was separated from the seeds by picking
with the fingers. Previous to the inven-
tions of Hargreaves and Arkwright, the
hand-spinning wheel was the only imple-
ment used for producing thread, and a
woman could scarcely exhibit two pounds
as the result of a day's labor. The ham-
moo hand loom of the East and the more
perfect implement of Europe have in turn
been thrust to the wall by the combinations
of the inventor. With the power-loom
one woman can now accomplish more than
a dozen strong men could with those anti-
quated implements. In the fourteenth cen-
tury none except the wealthy wore linen
garments, and those of a quality that the
laborer of to-day would disdain to wear.
Sixty years ago the working classes could
not afford to wear printed cotton garments;
now no fabric is furnished at a cheaper rate.
*Exchange.*THE INTERNATIONAL MARITIME EXHIBI-
TION.—A letter from Havre states that the
external part of the building for the mari-
time exhibition, to be opened there on the
first of June, is now almost completed.
Preparations are being made for receiving
and arranging the articles to be exhibited.
The fine arts are to occupy an important
place in the display. One of the principal
curiosities will be an aquarium one-half
larger than that of the Paris Exhibition,
and presenting an imitation of Fingal's Cave
in Scotland.NEW TELEGRAPH INSTRUMENT.—The Pitts-
burgh Commercial says a gentleman in Har-
rington, Pa., has lately invented a new
instrument, by which the rapidity of tele-
graphing is greatly increased. The Morse
system will transmit about 1,800 words per
hour, the House and combined system from
2,000 to 2,600, while a rate of 4,000 to 5,000
is claimed for the new one. The writing
bears a resemblance to manuscript. The
letters are traced with printer's ink, are ac-
curate, compact and easily read.FOSSILS IN ILLINOIS.—The Chester (Ill.)
Clarion says: Above the mouth of the Okaw
river, on the bluff, J. M. Christian recently
found the largest nautilus on record. It is
seven feet long, two feet wide and nine
inches in thickness. He now has it in his
possession. It is two feet four inches longer,
four inches wider, and about two inches
thicker than the largest one in the State
Geological Cabinet at Springfield.

NEW CONCRETE BUILDING-STONE.—The *Tribune* of March 25th, thus describes a new and successful plan for making silicate of lime for building purposes: Ground quick-lime is thoroughly mixed with clean, sharp sand, and is then subjected to the action of either superheated or high pressure steam, which slacks the lime and causes it to attack the silica. This process continues for from twenty minutes to ten days, according to the degree of heat employed, when the material is molded and compressed by a heavy steam hammer, into blocks of any desired form. The ordinary building block made by this process is ten inches wide and four inches deep, having a hollow space in the center six inches long by one inch broad; when the blocks are placed upon each other, so as to break joints, a continuous and connected series of air chambers will be formed within the wall. Thirty days exposure of the block, after it is first formed, to the air, produce an induration quite sufficient for all ordinary building purposes, but the block continues to harden for an unlimited period. A number of fine buildings have already been constructed of this material in Chicago. The endurance of this stone, when submitted to repeated freezing and thawing, is quite remarkable.

CASTING INGOTS OF A GIVEN WEIGHT.—Mr. Alexander Wilson, of the Cyclops Steel and Iron Works, Sheffield, has patented and specified improvements in the casting of ingots of steel, or other metal, to any given weight. For this purpose the ingot mold is placed upon the table of a weighing-machine, or upon a table supported by a steel-yard or weighted levers, or suspended from a spring balance; the ingot mold, and everything in connection with it, is then weighed. By adding the weight of the ingot to be cast to the weight of the ingot mold and its accessories he is enabled to make the ingots of any given and desired weight; any other arrangement for weighing the ingot mold and its contents may be employed if preferred, and in addition a registered apparatus may be adapted thereto.—*London Mining Journal*.

Changing the Address.—No charge is made for changing the address of this paper. To give all necessary information, write us plainly as follows: "Change address of the *Mining and Scientific Press* from Mr. ... at ... P. O., ... County, ... State, to Mr. ... at ... P. O., ... County, ... State. ... 186-"

PLATINUM

VESSELS, APPARATUS, SHEET, WIRE, Etc.,
For all Laboratory and Manufacturing purposes. Platinum Scrap and Ore purchased.
Office, 748 Broadway, N. Y.
17v16-2m

LOUIS FALKENAU (State Assayer). H. G. HANKS.

Pacific Chemical Works.

Office 619 Montgomery Street,
SAN FRANCISCO.

Laboratory, Sixteenth street, near Polson.

FALKENAU & HANKS,
Manufacturing and Consulting Chemists.

Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc.

Dissolution of Copartnership.

MR. E. T. KING HAS THIS DAY RETIRED FROM the firm of "Howland, Angell & King," the undersigned having purchased his interest and assumed all the liabilities. Our copartnership name will hereafter be Howland, Angell & Co.

W. H. HOWLAND,
H. B. ANGELL,
CYRUS PALMER.

San Francisco, April 20, 1868. 17v16-4w

To Mine Owners.

THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE in Mining and doing business connected with Mining Operations, offers his services to parties wishing to purchase mines, to examine and report upon them, to buy, report upon the titles of any mine offered for sale, and to transact any business connected with mining operations in this District. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address,
Lone Pine, Inyo Co., Cal.

JAMES DELAVAN. 4v16t

WHITING & BERRY'S SPECIALTY

Is to supply in large or small quantities:

INVALIDS,
PHYSICIANS,
HOSPITALS,
APOTHECARIES,
HOTELS,
PASSENGERS,
FAMILIES.
With Pure Wines and Undiluted Spirits for Medicinal and Family Use.

WHITING & BERRY,
Tea, Wine and Spirit Merchants.

17v16-3m 609 Sacramento street, above Montgomery.

Copperas! Copperas!

75,000 LBS. IMPORTED COPPERAS-SULPHATE of Iron—for sale in lots to suit, by
BENJ. BRADY, 101 California street,
S. W. corner Davis, up stairs.



Office Pacific Business College and Telegraphic Institute.

Mechanics' Institute Building, Post Street. [Exterior View.]

A. de LEO de LAGUNA.

[10v15-5m]

JAMES VINSONHALER.

WM. SHERMAN & CO.,

CLOTHIERS,

MERCHANT TAILORS,

AND DEALERS IN

Men's Furnishing Goods,

TRUNKS,

Traveling Bags, Valises, etc.

THE LARGEST

AND BEST SELECTED STOCK

IN THE STATE.

No. 608 Montgomery street, East Side,
North of Clay,

SAN FRANCISCO.

13v16 3m1p



THE FLORENCE

RECEIVED THE HIGHEST PREMIUMS

At all the most important Fairs held in the United States in the year 1867. Gold Medals at the American Institute Fair, New York; Mechanics' Association Fair, Lowell; Maryland Institute Fair, Baltimore. Highest Premium at the New York State Fair, Buffalo, and at the Great New England Fair, Providence. At the Fairs held on the Pacific Coast, this machine has taken

Every First Premium

Awarded on Family Sewing Machines in the LAST FIVE YEARS. It there is a Florence Machine within one thousand miles of San Francisco, that is not giving entire satisfaction, let me inform you of it, it will be attended to without express charge or expense of any kind to the owner.

SAMUEL HILL, Agent.

11v16-4m 111 Montgomery street, San Francisco.

Practical Mining and Milling Processes Described.

BEAN'S HISTORY AND DIRECTORY

—OF—

NEVADA COUNTY,

CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Chlorine and other processes; Geological Formation of the most noted mines in California, etc., etc.

COMPILED BY EDWIN F. BEAN.

Editor and Publisher of the Nevada Daily Gazette.

Price, \$5.—For sale at the office of the Mining and Scientific Press, San Francisco. 13v16f

CALIFORNIA WINES!

B. D. WILSON & CO.,

Wine and Commission Merchants,
423 and 425 Jackson street,

Sole agents for B. D. Wilson's celebrated Luke Vineyard and Mount Vineyard WINES and BRANDIES.

No Wines purporting to be of Mr. B. D. Wilson's production are genuine unless bearing our trade mark on package, label and seal.

We offer the above Wines and Brandy, in wood or glass, with our guaranty of absolute purity, at reasonable rates, and with a liberal discount to the trade.

13v16-3m

B. D. WILSON & CO.

Support Home Manufactures.

California Pioneer Fuse

MANUFACTURING COMPANY,

MANUFACTURERS OF

HOSE AND TAPE FUSE.

A New and Superior Article for Blasting in very wet ground, or under water.

Great difficulty has heretofore been experienced by miners, and others in the use of Fuse, which has been subjected to deterioration from exposure to dampness during transportation, or during the great length of time which has passed between its manufacture and use. In addition to great painstaking in the manufacture of the California-made Fuse, the above and many similar objections are entirely obviated, and the operator can always depend with certainty upon the burning of his fuse.

It is often the case that extra lengths are required, as exploding tunnels, etc., longer than is furnished in the imported article. Fuse of every desired length or size can be made to special order, at the above manufactory.

Manufactory, Potrero, San Francisco.

JOS. POWNING, Sec'y.

JAS. EVA, Supt.

17v16qrif

SPRING FASHIONS

FOR 1868!

MEUSSDORFFER'S

NEW STYLE OF

DRESS HATS

For Spring and Summer, will be introduced

On Saturday, February 29th,

635 and 637 Commercial street.

9v16t

Mining Secretary.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST five years as Secretary of various mining companies, feels fully competent to serve in that capacity. Any parties wishing to secure the services of a Secretary can be accommodated on reasonable terms. Information given, and all necessary papers correctly made out.

Having had a long experience in the purchasing of goods and machinery for miners, parties in the mines will find it to their advantage, where purchasing agents are employed, to send their orders to the undersigned.

J. M. BUFFINGTON,
Room 37 New Merchants' Exchange, California street,
San Francisco. 17v16-tf

Engraved to Order.—Persons who desire to illustrate their individual establishments or business, should give us their orders for Engraving and Printing, and we will guarantee good work and reasonable prices.

DEWEY & CO.,

Patron Agents, Publishers and Job Printers, 506 Clay st.

MOSHEIMER'S

Pioneer Mining School,

ASSAY OFFICE

—AND—

Metallurgical Works,

SAN FRANCISCO.

Having established the first Practical Mining and Metallurgical School in the United States, I would call the attention of gentlemen who may wish to obtain a practical knowledge of Chemistry, Metallurgy, etc., to the fact that I am now prepared to teach the following branches:

1.—Assaying of Ores, Metals, and other Mineral Substances.

2.—Metallurgy of Gold, Silver, Copper, Lead, etc., by Smelting, Amalgamating, Lixivation, etc.

3.—Gold Extraction, by Chlorine Oase; also, a modified process of the same, which is cheaper and quicker than the processes usually employed.

4.—Concentration.—Dressing of Ores.

5.—Construction of Furnaces, in which any kind of fuel may be used for Smelting, Roasting, etc., as well as the erection of any Machinery or Apparatus required in Metallurgy and Technology.

6.—Technology, or Chemistry as applied to any special branch of Manufacturing.

By my Practical Mode of Teaching, any person of ordinary ability can learn to assay Ores in three lessons, and the working of all the ordinary and refractory ores in a few weeks.

Gentlemen of almost every profession, who, within the last two years have graduated at my establishment, will bear testimony that from my instructions they have learned more in a few weeks than they ever expected to learn.

My charges are from \$50 to \$200.

Ores of every description assayed and worked
JOSEPH MOSHEIMER,
Pr. Chemist, Metallurgist, C. E., etc.

Office, 323 Montgomery street. Works, 2005 Powell street. 3v16-3mew

MINERS' LAMPS!

SCRANTON PATTERN,

FOR SALE BY

LOCKE & MONTAGUE,

112 and 114 Battery street,

SAN FRANCISCO.

13v16-3m

THE GOLDEN ERA.

Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

THE GOLDEN ERA

Is the most universally popular of all the Weekly Journals. It presents forty-eight columns, containing the greatest possible variety of Valuable and Entertaining, Original and Selected matter. It is a welcome guest in Cottage and Cabin; the favorite at the fireside in city and country; the most useful, agreeable and altogether desirable publication for California readers and their kindred and friends in the Atlantic States, Europe and elsewhere. Every household in the mountains and valleys, the cities, towns and mining camps of California, and throughout the Pacific States and Territories, should receive and welcome THE GOLDEN ERA as a regular weekly visitor. Inspired with the genius of the age, it is progressive, and aims not so much at distinction as a newspaper, as at honorable success in its capacity of a great Moralizing and Improving Influence, Exercising a positive power for good, and wielding a permanent influence, many able and eminent writers choose its columns as a means of communicating with the public. No effort will be spared to make it a thoroughly California newspaper, and worthy of the support of all classes of our citizens.

Rates of Subscription:

(Invariably in advance.)

One year.....\$5.00 Six months.....\$3.00
Three months.....\$2.00

TERMS TO CLUBS:

Three copies one year.....\$12.00
Five copies one year.....18.00
Ten copies one year.....35.00

An extra copy free for one year to the person sending a club of ten subscribers.

Send money to our office in registered letter, or by Express, Address,

BROOKS & CAPP,
San Francisco.

11v1

HUNTINGTON'S PATENT ELASTIC SPRING BOTTOM FOR BEDS AND FURNITURE.—A good bed is a luxury. Rich or poor, all are alike interested in every improvement looking to ease and comfort in the sleeping apartment. To the idle, no less than to the most industrious—although for reasons somewhat dissimilar—a good comfortable bed is a necessity, to quiet the excited nerves of the one, and rest the limbs of the other, weary and sore from the day's exertion. Messrs. Huntington & Torrey are now manufacturing at Nos. 353 and 355 Tehama street, in this city, a new style of spring mattress and lounge, which they flatter themselves is destined to supersede the wire-coil mattress, so well known in the market. The upholstery is done upon Huntington's Patent Elastic Spring—a California invention, patented Dec. 17, 1867, through the Patent Agency of the MINING AND SCIENTIFIC PRESS, by Mr. F. A. Huntington, of this city, and briefly noticed in our issue of Jan. 18th, 1868. The spring is composed simply of india-rubber bands, fastened to the lower end of standards, capped or padded on the top, the bands being also attached to each side of the cross-bars or boards of the bed, so that when a weight is placed upon the springs, the standards are pressed down between the openings, regaining their original position when the weight is removed; the ends of the standards projecting a little below the cross-bars. The object of the invention is to provide a cheap, durable and easy spring for beds, lounges, or other furniture. The following are some of the advantages claimed by the inventor for this spring:

1st. It retains its elasticity for any length of time,—the bed always looking well, when "made up."

2d. It will not cramp or bend over as is the case with the spiral spring.

3d. It is entirely noiseless,—there being no squeaking or ringing as with the spiral spring.

4th. The upholstery can be more firmly attached to this spring than to the spiral,—repairs as a consequence not being so often necessary.

5th. It is more easily and cheaply repaired. In the spiral spring bed, when it is necessary to replace even but one of the springs, the bed has to be taken entirely apart, involving an expense amounting to near the cost of a new bed. While one, or even the whole of the patent elastic springs, can be removed from the bed without disturbing a stitch of the upholstery, so that in case of accident to any of the springs, they can be replaced at a cost too inconsiderable to deserve mention.

EXTRAORDINARY.—At Desenzans in the province of Brescia, Italy, says the *Journal de Paris*, the Hotel de Porta-Vecchia, built upon piles on the shore of the Lake of Garda, is gradually sinking at the rate of about six inches a day; the ground floor has already disappeared. This immersion is taking place imperceptibly, and without any shock. Every means of preventing it have been employed, but without avail. Numbers of persons have come from a distance to witness this singular spectacle. The proprietor of the hotel, who was at first in despair at this misfortune, at length determined to charge a fee for admission to the house, and has already received a sum of money which will go far to compensate him for his loss. A scientific commission is about to visit the spot to open an inquiry.

GOLD QUARTZ IN SOUTH AFRICA.—Mr. Manch, a mineralogist and explorer, writes from Potchefstroom, Dec. 2d, 1867, that he has found gold-bearing quartz veins. One field is sixty miles long, and twenty broad. A letter from the same gentleman, dated two weeks later, is accompanied with a specimen of the quartz.

Important to Californians.—Many inventors have lately had their claims for Patents seriously (and in some cases fatally) delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of non-agent agents, are none the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. The Mining and Scientific Press Patent Agency has strictly complied with the regulations of the Department, and properly filed all necessary papers as Claim Agents.

Business Cards.

RODGERS, MEYER & CO., COMMISSION MERCHANTS,

ADVANCES MADE

On all kinds of Ores, and particular attention

PAID TO

CONSIGNMENTS OF GOODS.

4v16-3m

N. GRAY & CO., UNDERTAKERS,

641 Sacramento St., cor. Webb, San Francisco.

Sole Agents for Barstow's Metallic Burial Cases and Caskets.

DALTON & BLUNT, Produce and Commission Merchants,

Dealers in all kinds of Country Produce,
406 Davis street, between Washington and Jackson, San Francisco.

L. BREIDENSTEIN, Manufacturer and Dealer in JEWELRY BOXES, CONFECTIONERY BOXES,

And all kinds of Fancy Articles; also BOOK-BINDING.
No. 615 Montgomery street, between Washington and Jackson, San Francisco.

HELY & CUSICK, PRACTICAL HOUSE AND Ship Plumbers,

914 Market Street,
A few doors west of
Stockton.
Bath Tubs,
Water Closets, Wash Basins and Gas Fixtures always on hand. Buildings fitted up with
Gas, Water and Steam, in the most improved manner.
Particular attention paid to Jobbing. All work warranted
one year. 13v16-1v

JOHN R. SIMS, Manufacturer of all kinds of FIRE-PROOF Doors and Window-Blinds or Shutters, BURGLAR-PROOF

BANK VAULTS AND SAFES, Wrought Iron Girders and Beams, Wrought and Cast Iron Railings, Balconies, Stairs, Gratings, Tie Bands, Anchors, and other Architectural Iron Work at the Old Stand, established in 1833 by the present proprietor. Oregon street, between Jackson, Washington, Front and Davis, San Francisco, Cal. 13v15-4m

MINING AND SCIENTIFIC PRESS.

Terms of Advertising and Subscription.

Miscellaneous Advertisements.	
One week, per square.....	\$1 50
One month, per square.....	3 00
One quarter (3 months), per square.....	7 00
Advertisements of great length, or of special character, inserted by contract on the most favorable terms.	
The space of ten lines of solid agate advertising type constitutes a square.	
Mining Advertisements.	
Notices of Meetings, per square, three weeks.....	\$3 50
Notices of Meetings, per square, four weeks.....	4 00
Assessment Notices, of ordinary length, four weeks.....	7 00
Assessment Notices, of more than usual length, four weeks, for each additional square.....	4 00
Delinquent Sales, per square, two weeks.....	2 50
Delinquent Sales, per square, three weeks.....	3 50
Postponements, per square, one week.....	1 50
Ships of Advertisements printed, for meetings or assessments, per hundred.....	1 00
Advertising law blanks, circulars, and advice.....	Free

Terms of Subscription.

One copy, one year, by mail, in advance.....	\$5 00
One copy, six months, by mail, in advance.....	3 00
One copy, one year, by express.....	6 50
One copy, six months, by express.....	3 50
Five copies, one year, by mail, in advance.....	20 00
By city carriers, per month.....	60
Single copies.....	15
Monthly Series (or parts) one year, by mail.....	5 00
Monthly Series, per monthly copy.....	50

THE CIRCULATION of the Press, already extensive, is rapidly increasing, and substantial tradesmen who can profit by widely disseminating information of their business amongst the most intelligent, influential and industrial classes of the Pacific States and Territories, will find no more effective or economical medium for advertising.

ECONOMY in Advertising.—The MINING AND SCIENTIFIC PRESS is the best and most economical mining advertising medium in this city. Our terms are less than ONE HALF the rates now charged by daily newspapers, and the mining community are beginning to appreciate our reasonable rates of advertising. The Press contains, proportionally larger amount of mining advertising than any other paper on the Pacific coast. Its character renders it the proper journal for the concentration of mining patronage.

ELECTROTYPING CUTS, ENGRAVINGS, ETC.—Our Job Printing Office is abundantly supplied with elegant engravings, ornaments, and other embellishments to suit the various branches of industry in this State.

DEWEY & CO., Proprietors.
Patent Agency and Job Printing Office, 505 Clay street, San Francisco.
[Jan. 1, 1868.]

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Economy in Advertising.—The MINING AND SCIENTIFIC PRESS is the best and most economical mining advertising medium in this city. Our terms are less than ONE HALF the rates now charged by daily newspapers, and the mining community are beginning to appreciate our reasonable rates of advertising. The Press contains, proportionally larger amount of mining advertising than any other paper on the Pacific coast. Its character renders it the proper journal for the concentration of mining patronage.

ELECTROTYPING CUTS, ENGRAVINGS, ETC.—Our Job Printing Office is abundantly supplied with elegant engravings, ornaments, and other embellishments to suit the various branches of industry in this State.

DEWEY & CO., Proprietors.
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[Jan. 1, 1868.]

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WM. BARTLING. HENRY KIMBALL. BARTLING & KIMBALL, BOOK BINDERS, Paper Rulers and Blank Book Manufacturers. 505 Clay street, (southwest cor. Sansone), 15v12-3m SAN FRANCISCO.

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Mantels, Monuments, Tombs, Plumbers' Slabs
Etc., On hand and Manufactured to order.
Goods shipped to all parts of the State. Orders respectfully solicited. 5v8-3m

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Repairs promptly attended to. 3v15tf

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Stamps, Seals, Steel Pinches and Dies, Monograms, Notary
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RADICAL CURE —OF— RUPTURE!

Treatment of all Deformities of the Body, by DR. A. FOLLEAU's process. 624 Washington street, up stairs, Washington Baths Building, between Montgomery and Kearny streets.

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Has his studies and manufactures in the same building. Every kind of Apparatus, Trusses, Orthopedic Instruments, Artificial Limbs, etc., are manufactured and applied by himself.
He has no connection with any Agency. 2v14-11ptf

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER:

Black Diamond, in 1 lb. canisters.	do do in 2 1/2 lb. canisters.
do do in 5 lb. canisters.	do do in 10 lb. canisters.
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Pacific Mills River Shooting, in 1 lb. canisters.	do do in 2 1/2 lb. canisters.
do do in 5 lb. canisters.	do do in 10 lb. canisters.
Pacific Mills Rifle, in 1 lb. canisters.	do do in 2 1/2 lb. canisters.
do do in 5 lb. canisters.	do do in 10 lb. canisters.
do do in 2 1/2 lb. kegs.	do do in 5 lb. kegs.
do do in 10 lb. kegs.	do do in 25 lb. kegs.

Blasting and Mining Powder \$2 50 per keg.
Safety Fuse and Shot for sale by
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Pacific Mail Steamship Co's

STEAMSHIPS FOR NEW YORK, JAPAN AND CHINA.

LEAVE WHARF, CORNER OF FIRST AND
BRANNAN STREETS, AT 11 O'CLOCK A. M. of the
following dates, for PANAMA, connecting via Panama Rail-
road, with one of the Company's splendid steamers from
PANAMA for NEW YORK.
On the 6th, 14th, 22nd and 30th of every month.
Steamer leaving San Francisco on the 6th touches at
Manzanillo. All touch at Acapulco.
Departure of the 14th is expected to connect with the
French Trans-Atlantic Co.'s steamer for St. Nazaire, and
English steamer for South America. Through tickets can
be obtained.
Departure of the 14th is expected to connect with English
steamer for Southampton and South America, and Australia,
and P. R. R. Co.'s steamer for Central America.
Through tickets can be obtained.

STEAMERS FOR MAY, 1868.

The following Steamships will be dispatched on dates as
given below:
May 6th—GOLDEN CITY.....Capt. W. F. Lapidge.
Connecting with HENRY CHANCEY, Capt. Gray.
May 14th—GOLDEN AGE.....Capt. E. S. Farnsworth.
Connecting with OCEAN QUEEN, Capt. Bradbury.
May 24th—CONSTITUTION.....Capt. Wm. H. Parker.
Connecting with RISING STAR, Capt. Conner.
May 30th—SACRAMENTO.....Capt. J. M. Cavarly.
Connecting with ARIZONA, Capt. Maury.

Cabin passengers berthed through. Baggage checked
through—100 pounds allowed each adult. Medicine and attend-
ance free.
These steamers will positively sail at 11 o'clock. Passen-
gers are requested to have their baggage on board before 10
o'clock.

Through Tickets for Liverpool by the Cunard, Inman and
National Steamship Lines, can be obtained at the office of
the P. R. R. Co., San Francisco, where may also be ob-
tained orders for passage from Liverpool or Southampton
to San Francisco, either via New York or St. Thomas—if
desired an amount of £10 to £20 will be advanced with the
above orders. Holders of orders will be required to iden-
tify themselves to the Agents in England.

The Steamship GREAT REPUBLIC, Capt. S. Doane, will be
dispatched June 3d, at 12 o'clock, noon, from wharf, corner of
First and Brannan streets, for YOKOHAMA and HONG
KONG, connecting at Yokohama with the steamer COSTA
RICA for SHANGHAI.

For Merchandise and Freight for New York and way
ports, apply to Messrs. WELLS, FARGO & CO.
For passage and all other information, apply at the Pa-
cific Mail Steamship Co's office, corner of Sacramento and
Leidesdorff streets.

OLIVER ELDRIDGE, Agent.

Professional Cards.

A. R. WALKER, DENTIST, Office and Residence, 254 Fourth street, San Francisco. 10v16-3m

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HAZELTINE, LAKE & CO., No. 8 Southampton Buildings,
London, transact European and Colonial Patent business for
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Dewey & Co., Patent Solicitors, San Francisco. 2v15tf

DR. DANIEL BREED, Solicitor of Patents and Consulting Chemist, Office, 371 F street, opp. Patent Office, Washington, D. C.

Late of the U. S. Patent Office; formerly of the German
Laboratories of Liebig and Lewis; Translator of
the Chemicals of Lewis and Will.
DR. BREED will promptly attend to any business, and give
special attention to chemical, rejected, and other difficult
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Washington, D. C. 2v15-6m

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For a warranted cure of
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Headache and Toothache.
All Nervous and Chronic Diseases in general, and affections
of the EYES AND EARS.

Office Hours: 9 and 12 A. M., and 2, 5, 6 and 7 P. M.
Electrometers are forwarded to patients residing in
the country. 17v16-3m

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I PROMISE TO CURE RHEUMATISM, NEURALGIA,
Gout in the Feet or Ankles, Chills and Fevers, Dyspep-
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or animals, and no matter how long standing, whether
inherited or otherwise. Also, Heart Disease, Sore Eyes,
Sore Throat, Diphtheria, Scrofula and Salt Rheum. Secret
Diseases of all kinds cured. DR. JAMES BROWN, No. 340
Broadway, between Sansone and Montgomery street, San
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Drawings of Models made for parties applying for pa-
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2v15-1qy

R. F. RYAN, Attorney and Counselor at Law, Practices in all the Courts of this State, and in Nevada.

Office, Room No. 35, Metropolitan Block,
N. W. corner Montgomery and Washington streets, San
Francisco. 14v16qr

J. S. PHILLIPS, O. & M. E., MINING ENGINEER, Etc., Wadsworth House.....San Francisco.

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Pumping, Hoisting, Crushing, Separating and Reducing
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vice, as to the best method, and instructions for working
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Can have an opportunity of doing so by applying to the
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This is a new publication, and in style and treatment of this important subject, is original, simple, plain and comprehensive. The author, Prof. LAYRES (a meritorious Teacher of good standing in California, and a sound thinker and reasoner), in his preface says: "The method pursued by the Author in developing the subject of Composition, is both the synthetical and analytical. The former is necessary to teach the theory, the latter the practice of the art; and as these are both indispensable to the scholar, so are also the two methods, as the sequel will show."

The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—*John Siegel.*

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—*J. C. Patton.*

After as careful and thorough perusal of the same as it was in my power to give, I come to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—*Wm. H. Hill.*

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I regard the book about to be published as far superior to any work extant upon that subject.—*Wm. S. Hunt, A. M.*

I believe the work will be a valuable and much needed addition to our school text books.—*Hervon Perry.*

You have brought the results of a profound analysis, and made them available, in a practical form.—*I. M. Brayton.*

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and as advocates at the forum.—*John Curry.*

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. Exactly enunciated to interest. It will soon become a necessity in every lawyer's library.—*Charles A. Tuttle.*

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This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—*Atlas California.*

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—*S. F. Times.*

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The most eminent educators in California give it their hearty approval, and we concur.—*Marguerite Appad.*

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The Mining and Scientific Press,

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THE MINING AND SCIENTIFIC PRESS is published every Saturday. Each issue comprises sixteen pages (64 columns), and furnishes more valuable reading matter than any other weekly journal in California.

To the practical mechanic, metallurgist, prospector, millman, mine holder or worker, it is worth many times its subscription price. Its files contain a record of the improvements in mining machinery, the progress and development of the mines, and all new methods and processes for working and

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The MINING AND SCIENTIFIC PRESS is now in its Sixty-sixth Volume, and enjoys a large circulation. It received the following hearty endorsement of the California Miners' State Convention, held at Sacramento, January 17th, 1886:

Resolved, That we regard a mining paper or journal of great importance to the mining interests of California, and recommend the MINING AND SCIENTIFIC PRESS, of San Francisco, to the consideration and support of the miners of the Pacific coast.

Terms of Subscription.—One year, \$5; six months, \$3.—In advance. Send for sample copies. Remittances may be made by mail at our risk. All parties sending will register their letters, or send money order.

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DEWEY & CO.,

Jan. 1st, 1893.

San Francisco.

National Mineral Land Law, Instructions, Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & CO., office Mining and Scientific Press, San Francisco.

New Mining Advertisements.

Black Ledge Gold and Silver Mining Company, Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1883, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
C. H. Light	7	64	\$62.50
R. W. Heath	16	8	80.00
S. H. Greene	17	8	80.00
J. A. Drinkhouse	210	10	100.00
Asaph Gray	219	1	10.00
H. F. Cutler	212	1	10.00
H. N. Hanchett	83	5	50.00
T. E. Lindenberg	51	2	20.00
Geo. F. Sharp	149	4	40.00
J. C. Bateman	198	81	815.62
E. R. Waterman	114	1	10.00
W. Nicol	31	1	10.00
J. Camp	95	10	100.00
Joe White	97	15	150.00
H. L. Dawley	98	10	100.00
J. B. Bidleman	111	1	10.00
E. O. Bidleman	129	4	40.00
E. G. Bidleman	141	9	90.00
Ezra Grex	114	10	100.00
Ezra Grex	150	10	100.00
Chas. C. Grex	116	12	120.00
J. W. Harker	114	1	10.00
C. D. Bonestell	154	10	100.00
C. D. Bonestell	165	10	100.00
C. D. Bonestell	166	20	200.00
C. D. Bonestell	171	10	100.00
Jacob Bartz	217	12	120.00
Mrs. B. A. Aud	201	10	100.00
A. A. Rand	213	9	90.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1883, at the hour of 2 o'clock, P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.

Office, 223 Clay street, San Francisco, Cal. m2

Stockholders' Meeting.—Notice is hereby given, that a Meeting of the Stockholders of the Globe Gold and Silver Mining Company, for the election of Trustees and for the transaction of other business, will be held at their office, corner Union and Montgomery streets, San Francisco, Cal., on WEDNESDAY, the twentieth day of May, 1883, at 7 o'clock P. M. By order of the President.

J. WINCHESTER, President.

V. B. Post, Secretary.

OLNEY & CO., Auctioneers and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. D. Noe, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. nolo

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. Now advertisements should be handed in as early as possible.

Office of the Folsom Street and Fort Point Railroad and Tunnel Company.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of April, 1883, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Cash T. Fay, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the twenty-fifth day of May, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the eleventh day of June, 1883, to pay said delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. my2

Joe Lane Gold and Silver Mining Company, Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J. A. Drinkhouse	172	1	\$10.00
Asaph Gray	210	1	10.00
H. F. Cutler	174	1	10.00
T. E. Lindenberg	20	1	10.00
Geo. F. Sharp	35	21	210.00
H. H. Allen	141	50	500.00
D. E. Nicol	69	50	500.00
E. R. Waterman	161	2	20.00
C. H. Light	161	61	610.00
Wm. Nicol	93	1	10.00
W. Harker	173	1	10.00
Joe White	173	12	120.00
Geo. C. Watris	140	25	250.00
Mrs. B. A. Aud	159	29	290.00
H. H. Grex	175	12	120.00
Jacob Bartz	176	12	120.00
A. A. Rand	176	750	7500.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1883, at the hour of 2 o'clock P. M. of said day to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.

Office, 223 Clay street, San Francisco, Cal. m2

La Blanca Gold and Silver Mining Company, District of Urea, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-seventh day of March, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Alexander, Jacob	424	1	\$ 2.50
Bertz, Henry	123, 323	6	15.00
Barkhausen, I.	171, 242, 310	12	30.00
Becker, Nicolas	218, 222, 344, 466	15	37.50
Dierckx, Eliza	53	10	25.00
Etlin, Frank	431	3	7.50
Fanjoy, W. H.	550	6	15.00
Fies, S.	353	8	20.00
Finkel, Benjamin	273, 334	6	15.00
Hartmann, Charles	136, 323	13	30.00
Hildebrand, G. W.	222, 298, 244	52	130.00
Harrison, Peter	262, 347, 368	49	100.00
Hubert, Charles	52, 295, 455, 457	30	75.00
Huetter, Gustav	441, 455, 485, 524	25	62.50
Ilus, Sol	255	6	15.00
Hohn, Henry	353	6	15.00
Klevesahl, E. W.	148, 269, 320	21	52.50
Levy, Louis	350, 397, 400	25	62.50
Landis, C.	204, 341, 385	7	17.50
Nichelsen, H.	418	10	25.00
Nichelsen, Isaac	375	5	12.50
Pineke, J.	375	17	42.50
Rosenbaum, Valentine	525	5	12.50
Roth, Adolph	339	39	97.50
Walzman, Max	165, 369	3	7.50
Wetzelmeier, E. J.	471	300	750.00
Wittfeld, Gustav	457, 443	5	12.50
Zadig, Herman	483	2	5.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of March, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Maurice Dore & Co., No. 327 Montgomery street, San Francisco, on Saturday, the sixteenth day of May, 1883, at the hour of 12 o'clock, M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOS. COLDMAN, Secretary.

Office, No. 312 Front street, San Francisco, Cal. may2

Honest Miner Gold and Silver Mining Company, Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
H. H. Allen	310	80	\$800.00
Chas. Bertody	147	10	100.00
H. P. Bunker	138	1	10.00
H. W. Braxton	133	1	10.00
Jacob Bartz	334	5	50.00
H. F. Cutler	249	1	10.00
Chas. Camp	223	10	100.00
J. A. Drinkhouse	347	1	10.00
L. Dinkelspiel	48	4	40.00
L. Dinkelspiel	179	4	40.00
M. Dow	134	1	10.00
Asaph Gray	343	1	10.00
Chas. E. Gibbs	169	3	30.00
John Harker	146	1	10.00
S. M. Hill	184	1	10.00
John Hewston, Jr.	219	10	100.00
Chas. W. Brooks, Trustee	214	1	10.00
Chas. D. Kellogg	172	4	40.00
P. G. Lander	42	5	50.00
Thos. J. Lamb	132	1	10.00
Morley	194	2	20.00
F. P. McMahon	170	5	50.00
Wm. Nicol	211	1	10.00
W. L. Perkins	220	10	100.00
L. T. Rainow	203	2	20.00
A. A. Rand	350	100	1000.00
S. Solomon	150	30	300.00
S. Tilton	183	10	100.00
J. B. Williams	271	10	100.00
J. B. Ames	167	1	10.00
W. R. G. Barker	184	5	50.00
O. P. Warren	201	2	20.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1883, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.

Office, No. 223 Clay street, San Francisco. m2

Nuestra Senora de Guadalupe Silver Mining Company.—Location of Works: Tayeltita, San Dimas District, Durango, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 31) levied on the twenty-seventh day of March, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
M. Beyer	57	5	\$7.50
Pat Cavanagh	164	10	15.00
Joe Frankenheller	161	10	15.00
John Greif	70	60	90.00
Theo Gebl	123	20	30.00
Val Gasser	164	5	7.50
Rich. Gassner	62	5	7.50
Rich. Mayer	77	5	7.50
E. J. Pfeiffer	not issued	30	45.00
H. A. Roeder	43	5	7.50
G. Rasch	169	10	15.00
Joseph Sindel	not issued	5	7.50
G. Schuler	not issued	20	30.00
L. van Laak	80	10	15.00
L. van Laak	93	10	15.00
Ferd. Wagner	186	32	48.00
Of formerly untraceable stock—			
Joe Asson	150	10	15.00
Joe Asson	163	5	7.50
Louis Knapp	166	15	22.50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of March, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Badger & Chapman, auctioneers, N. W. corner of Kearny and California streets, San Francisco, California, on Tuesday, the nineteenth day of May, 1883, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. PEIFFER, Secretary.

Office, No. 210 Post street, San Francisco, Cal. my2

Rattlesnake Gold and Silver Mining Company, Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of April, 1883, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 315 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-ninth day of May, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth (15th) day of June, 1883, to

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
1st
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works, 915 1st

San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

-BY-

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
San Francisco.

BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Up-right Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other materials are crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,
1414 1st

Agents for the Pacific Coast.

NOTICE TO MERCHANTS

-AND-

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working, as goods require no slinging or landing, consequently make fewer breakages; requires one man less to operate it; stops with the goods in any position, without any jostling or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

YULCAN IRON WORKS CO.,
By Joseph Moore, President.

JOSEPH MOORE.

21v15 1st

HUNGERFORD'S

Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Ooss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15 1st

MORAN HUNGERFORD.

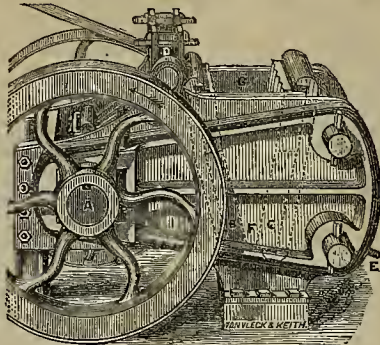
A FULL ASSORTMENT OF
MOLDERS' TOOLS,
Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors
above Montgomery, San Francisco. 22v15 3m

Notice to Miners,
Well-Borers and Water Companies.

M. PRAO IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAO,
8v13-17 Stove Store, No. 125 Clay street, below Davis.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.

The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1.—Or 0 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600
No. 2.—Or 10 inch Crusher, capable of similarly putting through five to six tons per hour..... 850
No. 3.—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour..... 1,200

EXPLANATION OF THE ABOVE ENGRAVING.
The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable jaw, and the link or radius bar. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, B, gives the movable jaw, D, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne county:—
"RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866.
JAMES BRODIE, Esq., San Francisco—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your latest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly,"
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of Grace to the limited period named, are requested to address as below.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press, of Sept. 22, 1866.

JAMES BRODIE, Fulton Foundry, or CHARLES RAICLIFE, Express Building, 402 Montgomery street, San Francisco.

12v13 1st

C. F. TRAVIS.



DUTCH ANCHOR BOLTING CLOTHS.
Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt; Mill-Stones Balanced with Fellenbaum's Patent Balance, of which I am sole proprietor in California, Oregon, and Washington Territory.

C. F. TRAVIS,
109 Mission street, San Francisco.
5v16 1st

Belting and Lacing.

A NEWLY INVENTED AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYCE, at 435 Brannan street, between Third and Fourth. Refers to Eisen Bros., Flourer Mills; Martin Steen, Naylor Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

6v16-3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters, Blacksmiths' and Horse-Shoers' Tools, 319 and 321 Pine Street,

Between Montgomery and Sansome, San Francisco.
11v14 1st

PACIFIC

FILE, REAPER AND MOWER SECTION
Manufactory.No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.

First premium awarded at the State Fair, 1867.
22v15-3m DURNING & KENNEY, Proprietors.

A FULL ASSORTMENT OF

TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearms Company.)

-ALSO-

Steam Gauges, a general assortment of
Hardware, Cutlery, and
MECHANICS' TOOLS.

By CHAS. OTTO & CO.,
312 Bush street, San Francisco.

22v15-3m

T. STEBINS,

Pattern and Model Maker.

Has recently opened a shop at No. 28 Fremont street, over Clerc & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and Patterns of every description. Jig Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regu ated by the style required. 11v16-3m

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice.

7v16 6m

H. T. HOLMES.

HOWE & STICKNEY,

MANUFACTURERS OF
Models for Patent Machinery.

All kinds of
Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

12v16 1st

No. 625 Mission street, near Second.

Wright's Picks for Sale.

THIRTY-FIVE DOZEN FLAT EYE SURFACE PICKS, with or without stop and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other description of PICKS for sale at REDUCED PRICES. Give me a call at 231 Fremont street, San Francisco.

8v16-3m

JOHN WRIGHT.

A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by

CHAS OTTO & CO.,
312 Bush street.

22v15-3m



It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can ALWAYS be used with

PERFECT SAFETY.

It has long been in constant use by many of our most

EMINENT PHYSICIANS, who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cts.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	43 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by

TURNER & CO.,
Sole Proprietors,
120 Tremont street, Boston, Mass.

9v16-6m

To the Mining Public.

THE SUBSCRIBER HAVING SERVED FOR THE LAST twenty years as Superintendent for various Companies, working mines of Gold, Copper, and Argentiferous Galena, offers his services to examine and report upon mines and mineral property. Reports accompanied by Plans, Sections and other Drawings. Also would be willing to take the management of any legitimate mining enterprise. If necessary, satisfactory reference given. Address,
H. H. SHELTON, Copperopolis, Cal.
14v16 1st

Legitimate Photography

OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photographs, and a special premium for the best Cabinet Portraits, to ELIAS SELLECK, 415 Montgomery street. Prices reduced to conform to Association rules. Patent secured.
25v15-6m

STOCK CERTIFICATES,
STOCK TRANSFER JOURNALS;
STOCK LEDGERS,
ASSESSMENT RECEIPTS,

And all other Blanks, Blank Books, etc., required by Mining and other Corporations, kept on hand or printed to order on short notice, at moderate prices, at the office of the Mining and Scientific Press.

ARTIFICIAL GEMS.—At a recent meeting of the Polytechnic branch of the American Institute, Dr. Van der Wyde gave the following facts: Artificial diamonds are made of flint glass, and known as pastes. The Alaska diamonds are made of the same material. An imitation of a \$300 diamond can be made for \$3, and no one can tell it from a genuine except by handling it. In selecting pastes, compare them with a real diamond, and the one nearest like the true gem will be always the best. Another way is to examine the stones with a strong glass, and if no air bubbles can be seen, then they are of the best quality, for in pure gems no imperfections are seen. Pure diamonds are unchangeable. Cheap stones, such as are sold "by the peck," are pressed when hot into the desired pattern, and then cut or ground. Twenty years ago artificial diamonds could be easily detected, as they were whiter than real gems, which have a peculiar dark transparency. Real diamonds are much colder to the tongue than artificial ones.

In this connection, we may add that the following is said to be a method of imitating gems which has been patented by the Superintendent of the Royal Porcelain Works at Berlin, Prussia: The base is a flux obtained by melting together 6 drachms of dry carbonate of soda, 2 drachms burnt borax, 1 drachm saltpeter, 3 drachms minium, and 1½ ounces of purest white sand. To imitate in color the following gems, add to the flux the ingredients named in connection with each:

Sapphire.—2 grains carbonate of cobalt.

Opal.—10 grains oxide of cobalt, 15 grains oxide of manganese, and from 20 to 30 grains protoxide of iron.

Amethyst.—4 to 5 grains carbonate of peroxide of manganese.

Gold Topaz.—30 grains oxide of uranium.

Smaragd.—20 grains protoxide of iron, 10 grains carbonate of oxide of copper.

Beryl.—10 grains protoxide of iron.

PROPORTIONS OF THE HUMAN FIGURE.—

Mr. Z. P. Pemberton recently delivered a lecture before the Polytechnic branch of the American Institute upon *Geometry in Nature and Art*. The following is quoted from the lecture, as reported in the *American Journal of Mining*: The proportions of the human figure are strictly mathematical. The whole figure is six times the length of the foot. Whether the form be slender or plump, this rule holds good. Any deviation from it is a departure from the highest beauty of proportion. The Greeks made all their statues according to this rule. The face from the highest point of the forehead where the hair begins, to the end of the chin, is one-tenth of the whole stature. The hand, from the wrist to the end of the middle finger, is the same. From the top of the chest to the highest point of the forehead, is a seventh. If the length of the face from the roots of the hair to the chin, be divided into three equal parts, the first division determines where the eyebrows meet, and the second the place of the nostrils. The navel is the central point of the human body, and if a man should lie on his back with his arms extended, the periphery of the circle which might be described around him, with the navel for its center, would touch the extremities of his hands and feet. The height from the feet to the top of the head is the same as the distance from one extremity to the other when the arms are extended. These are the general measures of the species.

A NATIONAL SCHOOL OF MINES.—The

American Journal of Mining has the following upon this subject: "Such an institution would increase the production of bullion in three ways; first, by sending forth educated engineers, able to meet and overcome the growing difficulties of gold and silver mining and reduction; second, by affording information to thousands who are too old or too busy to receive thorough instruction, but who, being actively engaged in mining, most urgently require that counsel which will save them from unnecessary losses and disappointments; and finally, by making the capitalists of Europe, as well as America, acquainted with the mineral resources of our country, and drawing to our great mining regions that capital which (next to knowledge) is their prime necessity."

NAPHTHA IN THE CAUCASUS.—The belief expressed by some geologists that naphtha would be found in the Caucasus has been realized. A boring, 276 feet deep, near Knaaco, has struck a source of this liquid, which yielded 1,500 barrels daily for one month; more recently a second source has been discovered near the former, from which the naphtha jets to a height of forty feet above the ground, and flows out at the daily rate of 6,000 barrels.

VARIOUS USES OF SEWAGE.—An experiment is being made at Asnières, near Paris, on a field of about 2½ acres in extent, and situated about 300 yards from the mouth of the great sewer sink. Two portable steam-engines pump 500 cubic meters of sewage water into a receptacle at one end of the field. A part of the liquid is applied directly to various crops, and the remainder is treated with chemical agents for its purification and conversion into valuable compounds. M. le Chatelier has expressed the opinion that the cultivated lands around Paris can never absorb a considerable portion of the sewage-water, because, first, the land is divided into small allotments, which increase the cost of distribution; second, the principal arable lands lie on high plateaux sloping contrary to the direction of the streams, and great difficulty would be found in getting rid of the excess of water by drainage.

TREATMENT OF WINE BY HEAT.—The late discovery of M. Pasteur, that wine heated to the temperature of 60° C. (140° Fah.) will neither turn, become diseased, nor deposit sediment, has been applied in practice at the Longworth Wine-House in Cincinnati with decided success. Maj. Anderson, the present proprietor of that establishment, constructed a heating chamber capable of holding 2,000 bottles of wine. Some of the wine heated was afterward exposed to the sun for four weeks, and only became more clear; while other wine of the same kind, not heated by similar exposure, showed traces of sediment. Dry wine in casks can be heated to the same point, and thus indefinitely preserved. The process is said to act as a restorative where wines have degenerated.

BELDUKE & CO.,
OF CONCORD, N. H.,
Long employed at the celebrated firm of Downing & Son, have opened a manufactory of



Concord Wagons,
Of all descriptions, at No. 820 and 822 Folsom street, between Fourth and Fifth streets, San Francisco.
Orders received for Buggies, Expresses, and Light and Heavy Thorough-braces. Carriage Springs made to order.
18½ 1am 6m

MECHANICS'
Mill and Manufacturing Co.

Cor. Mission and Fremont streets,
SAN FRANCISCO.

Formerly James Brokaw, Proprietor.
This establishment is now under the control of a Joint Stock Company, composed of the old employees, is supplied with all the

Modern Improvements in Machinery,
And has the best facilities in the State for furnishing Building with every description of WOODWORK FINISH.
All orders promptly and carefully attended to.
8½ 16-3m **ASA R. WELLS, Manager.**

WE ARE NOW OFFERING
OUR IMMENSE STOCK

Fine Custom Made Clothing

Gents' Furnishing Goods
AT PRICES THAT DEFY COMPETITION.
Our Stock of Clothing Consists of
ALL THE LATEST STYLES

BOTH OF MATERIAL AND FINISH.
A Large Assortment of
Trunks, Valises, Carpet Bags, Blankets, Etc.,
AT EXTREMELY LOW PRICES.

J. R. MEAD & CO.,
8½ 10 Cor. of Washington and Sansome streets

A NEW WORK
—ON THE—
Mining and Metallurgy

GOLD AND SILVER.
BY J. ARTHUR PHILLIPS.

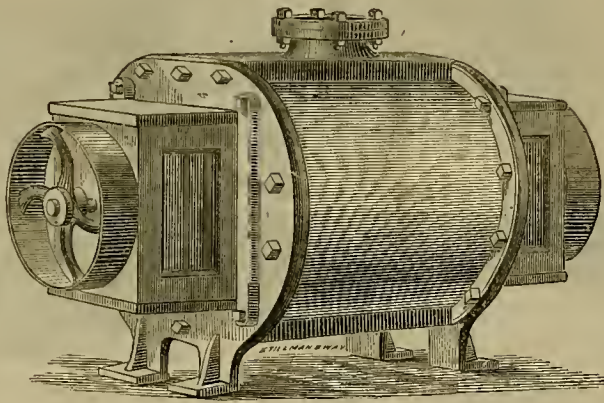
This is a large royal octavo volume of over 600 pages, illustrated with numerous plates descriptive of Mining Machinery and Mining Operations.

It should be in the possession of every Miner and Metallurgist on the coast.
For sale by
H. H. BANCROFT & CO.,
Dealer in Mining and Scientific Books,
San Francisco, Cal.
15½ 16m

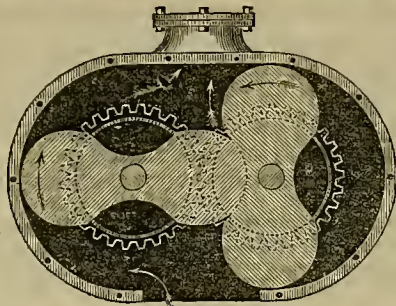
ROOT'S PATENT FORCE BLAST ROTARY BLOWER.

Patented Nov. 1st, 1864; July 24, 1866; and Oct. 9, 1866.

Awarded the First Premium at the Paris Exposition.



ADAPTED
FOR
Smelting,
Foundry,
Mining
and
Steamships.



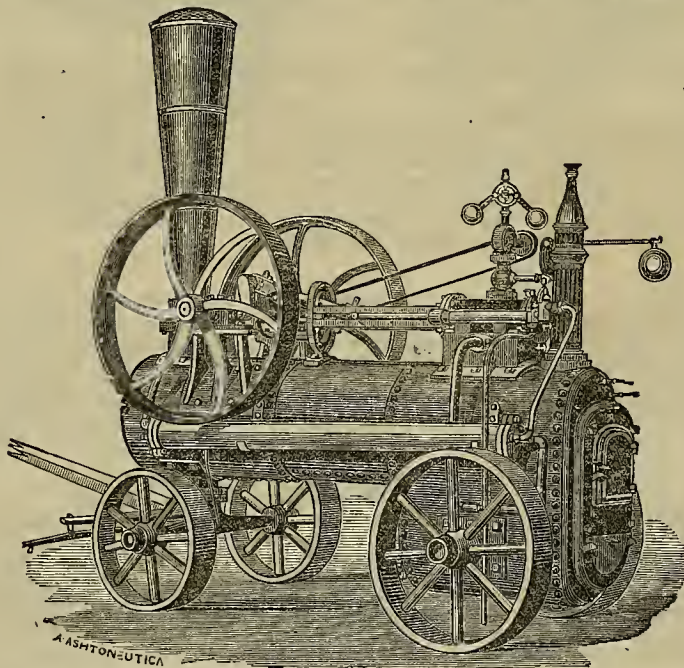
REQUIRES
Fifty Per Cent.
LESS POWER
Than any Blower
now in use.

One of these Blowers may be seen on exhibition at W. T. Garratt's Brass Foundry, corner of Mission and Fremont streets. They are also in use at the Almaden Quicksilver mine; Gridley's Foundry, Gold Hill, Nevada; Etna Iron Works, San Francisco, and many other places.
CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

For Circulars and further information, address
4½ 16 3m **KEEP, BLAKE & CO.,**
Globe Iron Works, Stockton, Cal.

BAKER & HAMILTON,
IMPORTERS AND DEALERS IN
Agricultural Implements, Portable Steam Engines, Hardware,
RUBBER BELTING, Etc., Etc.,

Nos. 17 and 19 Front street, San Francisco, and 9, 11, 13 and 15 J street, Sacramento.



Wood & Mann's Portable Steam Engines, 6, 8, 10, 12 and 15 horse power,

With newly invented Water Bottom, which entirely surrounds the fire grate and ash-pit, forming underneath the ash-pit, as up the sides of the furnace, a three or four inch water space, by which additional heating surface is obtained, the accumulation of sediment around the fire-box or furnace is entirely prevented, and renders it perfectly safe to use near any barn, or in any farm-yard, or in any building where a stove would be allowed, as no sparks can possibly escape from the furnace or ash-pit. The sediment has a free passage to the bottom of the fire-box, and can be blown off daily by the blow-off cock underneath the ash-pit, by which means the boilers may be kept clean much longer than under the old system. The great saving in repairs which is effected by the use of these water bottoms, and the constantly increasing demand for them, prove their superiority to any others yet constructed.

HOADLEY'S THRESHING ENGINES,
HITTINGER & RAWSON'S IMPROVED HOISTING ENGINES, 6, 8, 12 & 20-horse power.
FOR SALE BY
BAKER & HAMILTON,
Front street, bet. Pine and Market, San Francisco,
J STREET, NEAR THE LEVEE, SACRAMENTO. 15½ 16-3t

Metallurgy.

BOALT & STETEFELDT,
Assayers and Mining Engineers,
AUSTIN, NEVADA.
11½ 11

J. H. TIEMANN,
Mining Engineer and Metallurgist,
240 Pearl street, New York,
—AND—
CENTRAL CITY, COLORADO.
19½ 12-ly

G. W. STRONG,
ASSAYER AND WORKER OF ORES,
SAN FRANCISCO FOUNDRY,
S. E. cor. Howard and Reale streets, San Francisco.
Highest price paid for choice lots of Ores, Sulphurets, As say Ashes, Sweepings, etc., etc. Students instructed in all branches of Metallurgy, on liberal terms.
14½ 15qr.

Parties desirous of Taking
A COURSE OF INSTRUCTION

CHEMICAL ANALYSIS,
THE ASSAY OF ORES,
And the Use of the Blow-pipe,
OR ANY PART OF SUCH COURSE,
May apply at this Office.

22½ Pupils will have the advantage of a Complete Laboratory. 19½ 15

BRANCH
OF THE NEWARK, N. J.,
Metallurgical Works.

BALBACH & BROTHER,
No. 315 Howard Street, bet. Fremont and Reale, San Francisco.

Assays of Gold, Silver, Copper and Lead Ores.
Gold and Silver Ores and their Sulphurets, worked in any quantity, from a few pounds to any number of tons, it desired, by the Chlorine Process. Also, Jewelers' and Bankers' Sweepings.
Consignments of Gold and Silver Ores solicited.
Refining of Bullion at usual rates.
22½ Agents for Ed. Balbach's Improved Process for Separating Silver and Gold from Lead. 25½ 15-3m

JOHN TAYLOR & CO.
IMPORTERS,
AND DEALERS IN
ASSAYERS' MATERIALS,
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Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical Products.
Superintendent, Mr. WILLIAM WEST, formerly of Swansea, Wales.
For engagements and terms, apply at the office of
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Will not repair broken linings or leaky roofs; but it will quiet the nervous and brace up the weak. It will give more comfort to those suffering from dyspepsia or indigestion than any preparation you ever tasted or heard of. The first physicians use it, and it is made by
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THIS BED, NOW SO POPULAR IN THE EASTERN and Western States, was patented August, 1855. For practical utility, comfort and durability, it is unsurpassed. It is easily applied to any bedstead. It is portable, and not liable to get out of order. The price is about one-fourth that of the spring mattress. It combines elegance with cheapness and comfort. Call and see it. Mechanics' Institute Building, No. 29 Post street, San Francisco. 8½ 16-3m

VEGETABLE PARCHMENT.—In 1841, Wm. Gaine, an English engineer, in the course of certain experiments, found that unsized or "blotting" paper, dipped into sulphuric acid diluted to a certain extent with water, undergoes a remarkable change, assuming the appearance of membrane. This product has been named "vegetable parchment." It is scarcely affected by acids or alkalis. If wet with water, it becomes soft, but on drying resumes its former condition. It withstands the action of boiling water, which animal membrane does not. If submitted to chemical analysis, it is found to be composed of the same elements as before it underwent its transformation. This change is effected in a few seconds. The gelatinous sheet, on leaving the acid is placed in water, to free it from any of that acid which may remain; and then, to secure this end more completely, in a weak solution of ammonia. It is then a tough, elastic skin-like substance. The acid used is that of specific gravity 1.845, diluted with half its bulk of water. Specimens of this parchment made at the date above named, 1841, remain unchanged. "The rapid conversion of such a material as blotting paper, so easily torn, and so readily disintegrated by water, into a substance that bears an indefinite amount of rubbing and washing, has almost the effect, on the beholder, of a conjuring trick."

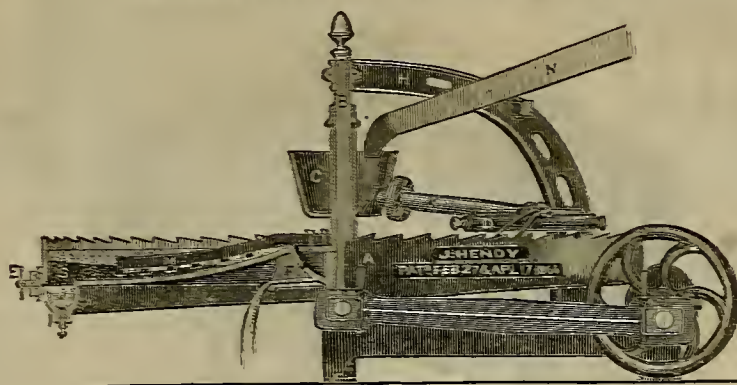
This vegetable parchment is now made in quantity. Its chief use, until recently, has been for covering cans of preserved fruits. In 1861, Prof. Graham found that it was especially suited for use in his experiments in dialysis; and it has therefore been used in the purification of sugar, and in the analysis of the stomach's contents for poisons, in medico-legal investigations. It answers the purpose much better than the animal membrane at first used. In 1865, it began to be employed for enveloping the gun-cotton cartridges used in blasting. Tea, packed in it, is said to retain its flavor far more perfectly than when packed in any other way. The patent having expired in December last, while, owing to various difficulties attending the early manufacture of the article in quantity,—and other causes,—the remuneration to the inventor has been very small, the English Government extended it for five years longer.

THE CHINESE EMBASSY.—The grand banquet given to the Chinese Embassy by the leading men of San Francisco, came off on Tuesday evening last, in the splendid dining hall at the Lick House. No expense was spared in the decorations, which were not rich only, but in the most perfect taste. In response to the regular toasts, speeches were made by Hon. Anson Burlingame, and Chih Tsien of the embassy, and by Gov. Haight, Hon. Delos Lake, Major-General Halleck, Admiral Thatcher, Newton Booth, Wm. A. Howard and others. In the course of his speech, Mr. Burlingame briefly alluded to the coöperative policy of the Treaty Powers; and remarked that although he could not then speak at length of the objects of the mission, he would say that "it means progress. It means that China desires to come into warmer and more intimate relations with the West. It means that she desires to come under the obligations of international law, to the end that she may enjoy the advantages of that law. It means that China, conscious of her own integrity, wishes to have her questions stated—that she is willing to submit her questions to the general judgment of mankind. It means that she intends to come into the brotherhood of nations. It means commerce; it means peace; it means a unification in its own interest of the whole human race." Mr. B. was warmly applauded. At a late hour the party broke up, well pleased with the entertainment.

The Embassy sailed on Thursday's steamer for New York.

WORKMEN are engaged finishing the last corner of Friedlander's extensive warehouse at North Point.

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets. [See Figure 2, marked S.]
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (3 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (3 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOOD MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO. Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M & M. CO. (3 Concentrators).....	Hazler's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (5 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Smalpa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.
JAMES HENDY & CO. (1 Concentrator).....	Melbourne, Australia.

And in use at many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.
J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,
S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.
J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.
W. H. RODDA, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,
LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

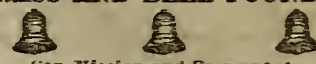
"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

April, 1868

JOSHUA HENDY, Patentee.
Union Foundry, San Francisco.

W. T. GARRATT,
City
BRASS AND BELL FOUNDER.



Cor. Mission and Fremont sts.,
SAN FRANCISCO.

MANUFACTURER OF BRASS, IRON, AND ANTI-FRICTION OR

Babbet Metal Castings:
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SAVES AND HAND BELLS AND GONGS.

FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Locomotive, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Splitters, Solder, and Copper Rivets, &c. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles.

HYDRAULIC PIPES AND NOZZELS

For Mining purposes, Iron Steam Pipe furnished with Flanges, &c. Coupling Joints of all sizes. Particular attention paid to Discharge Work. Manufacture of "Garratt's Patent Improved Journal Metal."

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Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1849, and endowed with the National Land Grant in 1865, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY. and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$125 per year of forty weeks.
The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and extensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 1866-1867

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Chimney Corner		
Literary Album		
London Society	6 00	
All the Year Round		
London Ill. News	15 00	
		By the Year, Month or Number.

SULPHURETS;

What they are:

How Assayed:

How Concentrated;

And How Worked;

With a Chapter on the

BLOW-PIPE ASSAY OF MINERALS.

By WM. BARTOW, M. D.

Published by A. Roman & Co., San Francisco.

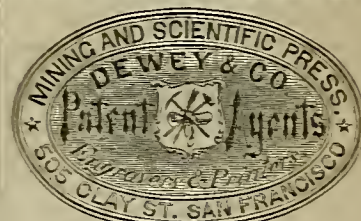
For sale at this Office.—Price, One Dollar.

With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 27-1867

SEND FOR FREE CIRCULAR AND CONFIDENTIAL ADVICE.

ESTABLISHED.....MAY, 1867

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PATENT AGENCY.



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And Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 9, 1868.

VOLUME XVI.
Number 10.

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MECHANICAL MISCELLANY.—
Manufacture and Wear of Balls; The Lullie, Delicate Iron Gun; Mirrors for Steel Making; Blast Furnaces; Safety Valves.
SCIENTIFIC MISCELLANY.—
Influence of Light on Infusoria; Interesting Electrical Experiments; Sensitive Flames; Chlorophyll and Chlorides; Baryta White; Chemists' Cement; Infusoria in Whooping Cough.
MISCELLANEOUS.—
Late Intelligence from the various counties and districts in California, British Columbia, Colorado, Idaho, Nevada, New Mexico and Oregon.
San Francisco Weekly Stock Circular.
Notices to Correspondents.
New Incorporations—List of Offices.
Stock Prices—Bid and Asked.

THE SANDWICH ISLANDS.—The terrible convulsions of nature which the last advices from the Hawaiian Islands describe, are perhaps without parallel in the history of such events within the memory of living man. Mauna Loa, one of the largest volcanoes upon the island of Hawaii, burst forth on March 27th, without premonitory showing, in the most frightful eruption ever known upon that group. The stream of liquid fire, one-fourth of a mile in width, rushed down the mountain at the rate of ten miles an hour; overwhelming and burying in its course, houses, cattle and crops, and forcing the people to flee for their lives. Then followed a frightful ten days of almost continuous earthquake shocks. Some of these shocks were most appalling in their violence;—the swaying having no definite character, but being "up and down, round and round, to and fro, in every imaginable direction." Houses were prostrated; the earth opened,—making large fissures in which men and flocks were swallowed up. The district of Kan, one of the most fertile and flourishing upon the islands, is a field of desolation. About one hundred lives were lost; all natives. Half a million of dollars would not make good the market value alone, of those homes of a month ago, which no money can restore. A tidal wave, some sixty feet in height, came rolling in from the sea at Ninole, in the above-named district, submerging and taking back with it, horses, cattle and men. A man who had gone on horseback several miles up the mountain, saw this wave sweep off, in an instant, the home and family which he had left an hour before, leaving nothing but a barren rock in their place.

ANOTHER FOUNDRY has been added to the numerous establishments of this kind already in operation in this city. The Messrs. Thompson Brothers have recently put up a large new structure on Beale street, east side, between Mission and Howard, which will be known as the Eureka Foundry, designed for turning out castings of every description, both heavy and light. These gentlemen have been connected with some of our leading foundries almost from their infancy on this coast, and hope, from their long experience and the extensive acquaintance formed in connection with this class of manufacture, to render good satisfaction and secure a full share of patronage.

Adams' Improved Boat-Detaching Apparatus.

We have here another important California invention, relating to that class of mechanism known as boat-detaching apparatus, and which consists, first, of an improved device for the instant detachment of boats from the davits; and second, in so combining it with the block as to make it easily applicable to any apparatus from which it is necessary to detach promptly. The object of this class of inventions, as is quite generally known, is to render the escape or disembarkation from ships at sea a more easy and safe operation than is possible with the detachment of the boat from hooks as in ordinary use. We have already described and illustrated one California invention for accomplishing this object,

the lever coming in contact with any substance and throwing open the jaws, thus releasing the weight and allowing it to fall. A pin, C, is placed over the lever, which, by being pushed into holes in two projections on top of the lever, D, fastens the lever rigidly, so that it will operate the joint, and when the joint is closed the finger may be inserted in the ring shown at C, and the pin withdrawn, when the lever, G, will drop out of the way of any rope or other obstruction which might otherwise strike it down and release the weight. This is rendered necessary on account of the ease with which the joint operates when carrying a load on the jaws, F, the slightest blow being sufficient to release the weight.

This apparatus will be found not only a benefit as a boat-detaching block, but will

THE MECHANICS' INSTITUTE.—The regular monthly meeting of the Mechanics' Institute was held in the lecture room of the Institute Building on Thursday evening. There was a large attendance, and among other business the following resolution, offered by Gen. A. M. Winu, was unanimously adopted:

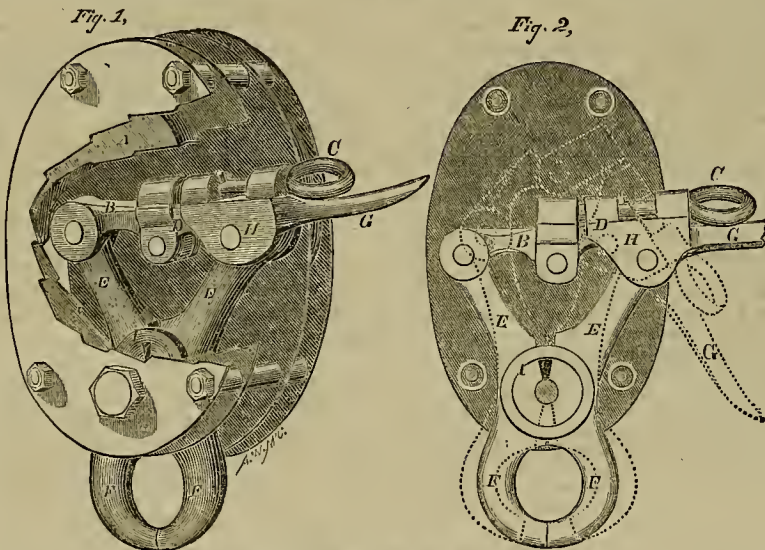
Whereas, differences of opinion exist among the members of the Mechanics' Institute in relation to the management of the coming Fair, which have been settled by the election of a President and Board of Directors by an unmistakable majority; and whereas, their recommendations presented subsequently were ratified by the Institute; and whereas, this, like every other association of citizens, can only succeed by submitting to the will of the majority; therefore be it

Resolved, That it is a duty we owe each other to use our industry and our influence to make the Fair a success, and cease all opposition to the plans laid and carried out by the majority.

By reference to our advertising columns, it will be noticed that the Board of Directors, advertise that the Institute will hold an Industrial Exhibition in Union Square in August next. A plan of building has been adopted, and preparations for the erection of the structure are in a condition of forwardness. Circulars are to be issued to the general exhibiting public, and every effort will be used to make the proposed Exhibition the most valuable and attractive ever held on the Pacific Coast.

BUSSEY'S LOCK.—SALE OF PATENT RIGHT. As an evidence of the growing popularity of this lock, we may mention that an assignment was made out and passed at our Patent Rooms, a few days since, assigning to a party resident in Amador county the right for the sale of this lock in the State of Pennsylvania for the sum of \$5,000. The party purchasing expects to treble his money within the first year after his arrival in the Keystone State. Those interested in such things are beginning to realize the benefits of this new lock, and Mr. B. is fast receiving orders for the same. He has recently invented an improvement on the original lock, by which he requires only one knob to draw the bolt and adjust the combination. The first of these locks put into actual use was at the Bank of British Columbia, in this city, some two years ago, where it has been in constant use ever since, giving the fullest satisfaction. This lock, it should be remembered, has neither key nor key-hole—a circumstance which renders it perfectly safe against the common burglarious attempts to blow it open with gunpowder. Mr. Bussey is now finishing a large lock for a bank in Oregon.

THE NEW WORK ON CALIFORNIA.—The new work to be entitled "Natural Wealth of California," by T. F. Cronise, will be issued by H. H. Bancroft & Co., the coming week. The impatience manifested for the appearance of this work, gives promise of a large sale for the same. The right to publish future editions of the book, in the States and Territories east of the Rocky Mountains, has been sold by the author for \$7,500.



ADAMS' IMPROVED BOAT-DETACHING APPARATUS.

which has attracted much attention in both America and Europe. So important is the successful accomplishment of this object held, that several of the European governments, as well as our own, have manifested much interest therein. The Emperor Napoleon, especially, has taken a personal interest in this matter as one of the highest importance in the cause of humanity.

Fig. 1 represents a side view, with two of the plates broken away, so as to exhibit the interior mechanism. The block is divided into three compartments, by metal plates; the two outside compartments being provided with sheaves, etc. The detaching apparatus consists of two bent levers, E, E, hinged together at I, the short arms, F, F, forming the jaws by which the boat is suspended. The long arms have hinged to them two short levers, one of which is shown at B, and which are pivoted together at D, thus forming a toggle-joint, which, when suddenly operated by the lever, G, instantly opens the jaws, F, F, as shown by the dotted lines in Fig. 2.

After the joint has been closed by striking up the lever, G, to avoid the liability of

be useful for warehouses and other places where great weights are handled, from its ease of fastening upon heavy articles, and also the ease of detaching it; while from the nature of the joint, the greater the weight the more firmly do the two jaws come together, rendering it impossible to drop the weight when the lever is down, unless some portion of the block should give way. It can also, with a slight modification, be employed on the cat head of a ship, for the purpose of holding and releasing the anchor.

COMMENCEMENT DAY.—The Commencement Exercises of the College of California, at Oakland, will take place on the 5th of June. The Commencement oration will be delivered by Rev. J. A. Beaton; the alumni address by Rev. Dr. J. E. Dwinelle; the poem by Charles W. Stoddard. Rev. A. L. Stone will preside at the supper. The organization of the new University of California, into which the present College will be merged, will add especial interest to the occasion.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

Formation, Distribution and Age of Igneous Rocks.

[Continued from page 274.]

"Whatever may have been the origin of the globe, we are warranted in stating that granitic rocks form a solid crust or basis upon which all the systems of strata rest. As to the origin of the gneiss and mica schist systems, it is abundantly evident, that the materials of which they are composed, were derived from the underlying granite.—*Elements of Geology, by David Page.*

"The stratified rocks received their structure through the immediate agency of water. But the materials of many of them, especially of older strata, were evidently derived directly from the igneous rocks. The composition of gneiss, which is believed to be the oldest stratified rock, is identical with that of granite. Granite often passes into gneiss, so gradually as to show that in early times the same materials were alternately acted upon by fire and water, and that they existed at one time in an unstratified, and at another in a stratified condition. The various classes of slates, as mica slate, talcose slate, and argillaceous slate, appear to have been derived from granitic rocks, which had been subjected to chemical and mechanical agencies. In different parts of the stratified series, we often find conglomerates which are composed of pebbles of igneous and aqueous rocks, cemented together by finer materials. From the above facts, it is an obvious inference that the whole crust of the globe, accessible to observation, was once in a melted state.—*Elements of Geology, by Adams & Gray.*

"The unstratified rocks usually occur in irregular masses, sometimes overlying other rocks, or in veins cutting across the layers of stratified rocks, or forming beds interposed between the strata. Modern lavas and ancient granites are alike unstratified rocks, having been erupted in a melted condition, at different periods in the history of the earth. The unstratified rocks which are now erupted from volcanoes, have their source beneath all other known rocks; and it is inferred from various data, that those of ancient date were in like manner erupted from beneath the then existing rocks. Going far back into the geological history of the globe, we come to a period when the oldest and lowest stratified rocks rested alone upon granite,—the oldest of the unstratified. Beneath are doubtless, in immense irregular beds, the reservoirs from which the eruptions of the igneous rocks had their origin, and above we have the successive strata, whose contents reveal the physical history of the earth.—*Ibid.*

The foregoing extracts from standard authors, show what are the opinions of geologists as to the origin of the rocks, stratified and unstratified, overlying the original granite. Now all the rocks, stratified and unstratified, with the exception of pure silica, are ores. Some of them, such as granite and syenite, greenstone, serpentine, etc., and the stratified rocks which were derived from them, are the ores of such metals as sodium, potassium, calcium, strontium, magnesium, etc.; while others contain a large percentage of aluminum. Now all these rocks, or the material composing them, was erupted, and why should not the rocks, carrying the useful and precious metals have also been erupted, since metal bearing quartz, altered and unaltered, exists in such enormous bodies. When we come to examine the huge deposits of quartz conglomerates and auriferous gravels, in place, we shall find it impossible to account for their existence and the phenomena attending them upon any other hypothesis.

"There is much difficulty in explaining," says Humboldt, "the origin of the beds of pure quartz, which occur in such large quantities in South America, and impart such a peculiar character to the chain of the Andes. In descending toward the South Sea from Caxamarca toward Guanamarcá, I have observed vast masses of pure quartz, from 7,000 to 8,000 feet in height, superposed, sometimes on porphyry devoid of quartz, and sometimes on diorite."

Hugh Miller describes (in *Old Red Sandstone*) the assynt deposits of quartz conglomerate, which are situated on the west coast of Scotland, and are thousands of feet in thickness. He is of the opinion that these huge deposits are a part of, and belong to the old red sandstone system. This deposit is situated high up on the flank of the range of mountains composing the backbone of Scotland; is 150 miles in length, and rests unconformably upon the gneiss. I see no reason why it might not, in some of its lower beds, prove to be auriferous.

Let us now examine some of the immense quartz gravel deposits of our own country, which we know to be auriferous. "In the first place," says Prof. Whitney, in speaking of the vast auriferous gravel deposits on the western flank of the Sierra Nevada, "these deposits are not of marine origin, as is proved by the fact, that, although frequently found to contain impressions of leaves, masses of wood and imperfect coal, and even whole buried forests, as well as the remains of land animals, and occasionally those of fresh water,—not a trace of marine production has ever been found in them." As showing the great antiquity of these deposits, he further says, "for now these deposits of gravel and overlying volcanic materials, instead of occupying the depressions of the surface, are found on the high plateaux between the present cañons and flat-topped ridges, known as table mountains, hundreds, and even thousands of feet above the present river beds. Thus the topography of the country is exactly the reverse of what it was at the time of their deposition; what were then valleys are now ridges, and the ridges of the former times were where the immense cañons of the rivers flowing down the western flank of the Sierra now are." In no instance, so far as I know, are any of these ancient deposits found overlying a formation belonging to an age more recent than the old red sandstone era.

As to the origin of these ancient deposits, the old rivers which formed the auriferous beds upon which the towns of La Porte, Howland Flat, Gibsonville, and other mining camps are situated, seem to have emanated from Pilot Peak and its immediate vicinity, and to have run in a southwesterly direction. Yet Pilot Peak is surrounded by a chain of valleys on the west, north, and northeast, some thousands of feet below the level of the old channels. It is held by many, that these old river beds "consist of materials, which have been brought down from the mountain heights and deposited in pre-existing valleys." But here, firstly, there are no mountain heights from which the rock material could have been derived; and secondly, here are beds of gravel, miles in length, and thousands of feet in breadth, and hundreds of feet in depth, and although they were deposited by the action of ancient streams, many of them are composed entirely of quartz gravel and boulders.

Again, the auriferous deposit at Cherokee, Butte County, six hundred feet in depth in one place, and miles in length and breadth, is composed entirely of quartz gravel, streaked with nearly horizontal lines of red oxide of iron. Free gold exists all through the mass of gravel, from the top to the bottom, and I am informed by Mr. Kendricks, whose acquaintance with this deposit extends over a period of twelve years, that it is the richest top gravel he knows of in the State. The presence of free gold all through the mass, some of it rather coarse, shows that this deposit has never been subjected to the action of a running stream of water, or the gold would have been deposited in strata, or at the bottom. Indeed, this deposit looks as if it might originally have been a mass of molten quartz, which was afterwards granulated by being queched with water.

While many of the ancient auriferous deposits situated along near the summit of the Sierra Nevada, are high above the present river beds, some of the old channels situated along the western base of the Sierra, are below the beds of the present streams. The ancient river bed known as the Bangor Blue Lead, Butte County, runs in a north of northwest direction; while the present water courses run in a southwesterly direction across this old deposit. The old river channel is deep below the beds of

the present streams, showing that the topography of the country has greatly changed, as the site of this deposit must have been at the time of its formation, perhaps, hundreds of feet above its present level. This, together with many other facts, lead me to infer, that the volcanic line, at and near the base of the Sierra, was during the eruptive era of quartz,—while the crust of the earth was thinner,—a range of low hills or mountains, which, during the widening and upbuilding of the Sierra Nevada, was sunk to, and at one period, below its present level, as the overlying marine deposits indicate.

[Concluded in our next.]

THE RESOURCES OF IDAHO.—A correspondent writing from Boise City, Idaho Territory, April 3d, says of that region: In one of my occasional scribbles last year, I expressed the opinion that from indications, it would not be long before the sound of the quartz battery, and the smoke from many furnaces would be seen and heard in this vicinity, and I believe that the time is near at hand.

Last month a ledge was discovered about five miles from this city, which prospects finely. The company have 1,000 feet staked off, and traceable by surface croppings nearly the whole length of their claims. Pieces of the rock taken from the lode have been assayed by Mr. Liebman, assayer, and gave \$92, \$149, and one piece, \$148 to the ton—silver slightly predominating in the latter. The vein at present is not over three feet wide, and for Idaho Territory is a small lode. It is called the Scorpion. It is said that other lodes in the immediate vicinity of Boise City have also been found. Only let them be found and tested, and the superiority of the climate over any other in the Territory will do wonders towards their obtaining capital to work them.

To-day the thermometer is 88° in the shade, and the weather magnificent—and during the winter, although we sometimes have some cold weather, yet, there is neither cold or snow sufficient to arrest work. At Owyhee the snow is now just beginning to melt, and whilst the stages from the east and west are making regular time, it is mud, snow and slush from Owyhee until the Snake River bottom is reached,—in fact except that Boise City and Valley is fully warm in summer, it is as fine and lovely a climate as any that can be found north of 40° north latitude.

TEST FOR EXPLOSIVE OILS.—The following is from the *Journal of Chemistry*: "Take a common quart bowl; fill it one-third full of boiling water; now add cold water, a little at a time, until a thermometer placed in it indicates a temperature of 110 deg. Fah. A tablespoonful of the oil to be tested may be turned into the water, and stirred about with the thermometer. It will float on top, and it may be touched with a lighted match or a bit of paper. If it takes fire, the oil is dangerous; and the seller can be prosecuted under the United States law. It must not be used in the family. In this experiment, so simple that all can make it, an accurate thermometer should be used. The common thermometer in a japanned iron case, is usually sufficiently accurate. To test the thermometer, bring the water into the condition of active boiling; warm the thermometer gradually in the steam, and then plunge it into the water. If it indicates a fixed temperature of 212 deg., the instrument is a good one."

PORCELAIN GLAZING.—M. Richard, ceramic manufacturer at St. Christophe, near Milan, recently communicated to the Society of Encouragement, Paris, his process for varnishing pottery. The following are the ingredients: Carbonate of soda, 1-000; boracic acid, 0-800; kaolin, 0-125; carbonate of lime, 0-250; sulphate of lime, 0-250; crystallized feldspar, 0-750; quartz, 0-280; fluato of lime, 0-150. Manganese is added to obtain the desired tint. The whole grit is ground fine, and then mixed with 110 parts of kaolin and 52 parts of feldspar for every 460 parts of the above frit. It is applied as usual in glazing, but, as the specific gravity is less than the leaden coating, the same weight of the new glaze will cover a greater quantity of pieces.

[Written for the Mining and Scientific Press.]
Mining near Boise City, I. T.

EDITORS MINING AND SCIENTIFIC PRESS. The financial agent of the Lucy Phillips G. & S. M. Co. (Mr. Wiles) is here, en route for Yuba, Alturas County. This is a company formed in England, with a capital of £120,000. They have purchased machinery, and probably by this time it is on its way from Columbia River. Workmen have gone up to erect the necessary buildings, and the machinery is bound by contract to be delivered at Yuba, by middle of June. I see by the London *Mining Journal*, that the leading men of the company are gentlemen of high standing and respectability in London, and are men of means, so that in all probability there is at last a respectable and stable corporation ready to operate in that hitherto "scindle-cursed" region of Alturas County. I will keep you posted on the doings of quartz men and mines of that region. Mr. Matthew Graham deserves much credit for the tact and energy he has displayed in being the first to start an English company in this wild region.

The winter at Yuba has been very mild, and little or no snow of any moment has fallen there, while Rocky Bar has had several feet; but it is fast disappearing, and placer miners are getting to work.

The Phillips Co. also talk of buying the old Idaho G. & S. M. Co.'s mill, erected under the superintendency of Dr. Farnham; and it is confidently expected, that this summer will give you some news from Yuba in the shape of gold bars and silver bricks. I also learn that the Greenback Co. are preparing for work.

It is hoped that the Alturas Mining Co., of which Col. John O'Neil was Superintendent last year, will now go ahead, as they have plenty of machinery, about 25 miles from Yuba, and a good ledge at Yuba—the "Hard Times." They will do well to listen to such practical men as Col. O'Neil, instead of the inefficient party, lately sent out. It is just such men that have set Alturas County so far in the background; but the day is dawning, when Alturas will take her place high on the list of gold and silver producing counties. You may expect during this year, great developments in all the quartz districts of southern Idaho.

The "Scorpion" lode, of which I made mention in my former letters, improves as work progresses, and will doubtless, under the able management of its present energetic owners, develop into a first-class lode. May many more like it be found so close as that is (five miles) to Boise City.

H. W. O. M.
Boise City, April 24, 1868.

VALUABLE MINE.—The Bee Hive Company's mine, located some 25 miles easterly from Oroville, Yuba County, appears, from all accounts, to be one of much promise; but it is now idle for the lack of capital to work it. The locators have pretty thoroughly prospected it, by a tunnel some 250 feet long, connecting with an incline 105 feet from the surface, and other drifts and workings. The rock taken out has been crushed in a small, illy-constructed, 4-stamp mill. The chief part of the rock worked, has been taken from a chimney, leading from the tunnel to the surface, and has paid \$17 to the ton, independent of the sulphurets, which are very abundant, and, according to a certificate of assay, by Knight & Co., of Marysville, also very rich. The certificate of assay, which is before us, reports the sulphates as yielding \$639.94 in gold, and \$31 in silver per ton. About \$8,000 in all have been realized. Such a mine ought to pay well to a company having the means to properly work it. The present proprietors are looking for such parties, with whom they are willing to negotiate for the entire, or a partial interest. Hoisting works will be necessary to a further prosecution of the work. The time is rapidly coming when the chief value of most of our great mines will be found in their sulphurets.

Mechanical.

THE MANUFACTURE AND WEAR OF RAILS. Mr. C. P. Sandberg recently read an interesting paper upon this subject before the Institution of Civil Engineers, giving the results of a series of elaborate experiments. Among his conclusions were the following: That no rule could be laid down for the manufacture of rails that would apply to every district; but that in the case of Welsh iron, it had been proved that the best method was that now most commonly practised—rolling the iron into hars, piling these, and repeated rolling to the finished rail, without hammering. He assumed that the prejudicial result from hammering was owing to the large amount of sulphur in the Welsh iron. Where the iron contained more phosphorus and less sulphur, as, for instance, in the Cleveland, Belgian and French iron districts, hammering has proved beneficial, and rails had been made direct from puddled bars, without the intermediate process of piling; this being, in fact, the method generally adopted in those places, and being found to answer best.

With regard to the relative economy of iron and steel, Mr. Sandberg considered that it was the amount of traffic which must decide which material was the most economical to use for the maintenance of the permanent way. For all railways where ordinary iron rails were worn out in five years, or in a shorter time, solid steel rails (at twice the price of iron) were the most economical. Where ordinary iron rails lasted over five and up to ten years, steel-top rails would be the cheapest; iron rails in these cases being clearly proved to be the most expensive, although the cheapest where they lasted from fifteen to twenty years.

THE LATHE.—The *American Artisan*, in an article upon the abuse of tools, says of the lathe: "In many machine shops, the lathe is not only the indispensable tool, but often the only tool of any importance that is employed, and sometimes thought to be the only one needed for the majority of operations in some kinds of machine building. This tool, which is designed especially for the production of cylinders and for screw-cutting, is thus enervated and degraded into a sort of pack-horse, being made to perform the work of a drilling machine, milling machine and gear-cutter; and often has to subserve the purposes of a planer and frame for polishing wheels. We have seen superior lathes, which were nicely and carefully fitted when manufactured, but after a few months' wear and tear in shops where they were thus rudely treated, had not the first approach to accuracy, and as a result, their makers were often condemned as producing work that could not be depended upon."

DELICATE IRON CASTINGS.—In the Berlin iron castings, the minutest details are sharply defined, and the entire surface has a bronze-like smoothness. M. Schott, the manager of Count Stolberg's works in Brunswick, has carried the manufacture to the highest perfection. His sand is made by mixing burned clay with a pulverized sandstone, having a maximum porosity. The most important part of the process, however, is the preparation of the metal. M. Schott made a series of experiments to determine the melting point of different kinds of pig iron; and by mixing several in proper proportions, he has been enabled to vary the melting point at will. It will surprise even practical ironfounders to learn that his experiments proved that the melting point of different samples of charcoal iron made at his own blast furnaces varied more than 800° F. Charcoal iron generally melts at 700° higher temperature than coke iron. The contraction on cooling is greatest in the charcoal iron, and, in most cases, it has the greatest density when solid. In examining various specimens of casting, M. Schott brought to his aid the microscope, and was thus enabled to detect certain differences which chemical analysis had failed to explain.—*Scotsman*.

NITRATES FOR STEEL MAKING.—The *London Mining Journal*, for March 28th, gives an account of Mr. Hargreaves' process for making steel,—and reviews a paper recently read before the Cleveland Society of Engineers,—in the course of which it says:

The material which Mr. Hargreaves finds best suited for effecting the conversion of the iron into steel is nitrate of soda. It had been used before for the manufacture of steel and iron, by placing it at the bottom of the converting vessel, but without taking precaution to hold it there till decomposed, or to regulate the violence of its action. One of these proposals was secured by patent more than ten years before the date of the Bessemer patents, but in the somewhat impracticable shape of pushing the salt to the bottom of the fused metal in packets of brown paper. Another mode was to force it through a tube to the bottom of the fused iron. To convert cast-iron into steel, it is necessary that the quantity of carbon which is in excess of that required to form steel should be extracted; and also the whole of the silicium, sulphur, and phosphorus. The first element removed is the silicium, which is effected by the oxygen of the nitrate of soda, converting it into silicic acid, while the soda forms a lase to combine with the silicic acid formed. The carbon is next removed in the form of carbonic acid, or carbonic oxide gases, and the sulphur and phosphorus are in a great part removed as sodic compounds. In working out his invention, it was necessary to have some means of regulating the rapidity of the action of the salt. This he effected by mixing with some inert compound, and he found that oxides of iron and manganese, while thus acting as regulators of the action of the salt, also by affording oxygen, enabled him to effect a considerable saving in the quantity of salt used, and also increase the quantity of steel produced.

SAFETY VALVES.—At the meeting of the Polytechnic Association of the American Institute, March 26th, Mr. Emery gave the result of some experiments made at the Novelty Works, in New York City, respecting the area of safety-valves, and remarked that the area of safety-valve openings in square inches per square foot heating surface in boiler— $1-13.5 (n+3)$, in which p equals pressure in pounds above the atmosphere.

This formula gives results corresponding with those obtained by experiment for difference of pressure ranging from one pound to one hundred pounds per square inch. It is not strictly correct when nearly to zero. The formula gives the area required to maintain the steam at a given pressure with ores burning freely; but it should be remembered that the safety-valve does not open sufficiently to give its full area without considerable increase of pressure. The area of the valve should therefore be much larger than that of the opening calculated as shown. This formula also gives the proper size of the steam pipes connecting several boilers set in a "nest." The difference in pressure in the several boilers should never exceed one-fourth of a pound at the greatest. Letting $p = \frac{1}{4}$ in the above, will give the smallest area of steam connecting-pipe consistent with safety, and it would be better, when possible, to make them fifty per cent. larger than this. The limited size of steam connection has been the cause of many so-called "mysterious" explosions in a nest of boilers having but one check-valve in the common feed-pipe.—*American Artisan*.

BLAST FURNACES.—Mr. John Heaton, of Langley Mill, Derby, has obtained a patent relating to blast-furnaces. The object of this improvement is to avoid the necessity for the use of blowing machinery to obtain the required blast, by connecting the upper part of the furnace with a chimney of considerable height, adapted to the draft required, openings being provided for the introduction of the charges. The tuyeres receive their supply from the external air, in place of from blowers.—*London Mining Journal*, March 28th.

POWERFUL PRINTING PRESSES.—"M. Marionni has put up in the new printing office of the *Petit Journal* a marvelous machine of his invention, which prints 600 copies a minute. Four of these machines turn out 144,000 copies an hour; the whole impression being 446,000 daily."—*Paris Correspondence*.

Scientific Miscellany.

Influence of Light on Infusoria.

Prof. F. Cohn has made experiments with the mouthless genera of infusoria, which are provided with cilia, and those genera of microscopical plants which are possessed of an independent power of migration. He finds they all move in a definite direction, and that the immediate cause of movement is light. In colorless organisms light has no influence, and they appear to move in every possible direction. Experiments with *Euglena* gave the following results: If a drop of water equally filled with these green organisms be placed upon a glass slide, it will be seen, before many minutes, that they will betake themselves to that portion of the drop which is turned toward the window, or even toward that part of the sky which is most lightened. He found that it was not the intensity, but the direction of the rays of light which governed the movements of these organisms. The following are Prof. Cohn's conclusions:

1. The direction of the movements of green organisms is determined by the direction of the rays of light which fall upon them. They are attracted rectilinearly by the source of light. Apparent exceptions to this rule are brought about simply by the form of the drop or mass of water containing them.

2. They exhibit a polar relation to light; the cilia and that part containing no chlorophyll are turned toward the light, and the green portion away from it.

3. All movements are accompanied by a rotation of their bodies around a longitudinal axis passing through the head and tail. While in the darkness they can turn from right to left or left to right, but under light they have a definite direction which is contrary, in *Euglena*, to the hands of a watch and the same as the rotation of the earth.

4. Experiments with colored glass show that only the more refrangible or actinic rays induce this direction. The organisms are more strongly attracted by the blue rays, while the red are the same as total darkness. If one-half of the field is lighted by blue and the other by red, they will go to the blue side, even if it be turned away from the window-edge. There are some exceptional forms which turn away from the source of light by a backward motion, and afterward return to it.

5. It appears probable that all these phenomena, so far as direction of movement is concerned, depend upon the chemical activity of these bodies. We can, in fact, imitate many of these movements by purely chemical processes, with the help of what may be called artificial *Euglena*, viz: a fusiform fragment of chalk, having one-half covered with a resinous cement, which, when placed in diluted sulphuric acid, develops chemical action in its uncovered half, and by the backward impulse thus generated in the direction of the uncovered end, the chalk is made to rotate.

INTERESTING ELECTRICAL EXPERIMENTS. M. Rondel of Brive, has recently been making some experiments which are described by the *Chemical News*: "If, while the current passes through the primary wire of a coil, one of the extremities of the secondary wire is brought near one of the extremities of the iron core, sparks can be drawn of remarkable intensity and brilliancy; if, at the same time, the other end of the secondary wire is put in communication with one of the poles of the pile, a great increase takes place in the brilliancy of the spark. Then, on touching with the hand the iron core, and placing the free end of the wire in contact with the skin, a smart stinging sensation is felt. The sparks were produced with detonations. A single Bunseu element of small size was sufficient to produce these phenomena. When two recipients are charged with mercury and water, and fragments of iodine added, no effect is perceived; but if a small piece of zinc is allowed to fall into the mercury, the fragments of iodine are instantly set in motion and are rapidly dissolved. This solution, poured off clear, serves for many uses. M. Rondel has employed it, concentrated, for the supplying of a pile mounted in a closed flask, also for the preparation of a fine red iodide of mercury."

LIGHT FROM ATMOSPHERIC OXIDATION.

H. Baumhauser says that oxidation is so rapid upon a perfectly clean surface of potassium or sodium, that light is thereby evolved.

SENSITIVE FLAMES.—To obtain a flame which shows, to the best advantage, the curious phenomena upon which Prof. Tyndall has recently made and published such interesting experiments, all that is necessary is to burn the gas from a jet under considerable pressure; this may be done by forcing it from a bag. A flame may in this way be obtained, which rises in a slender column two feet high, and is exquisitely sensitive. "At the sound of a chirrup the flame sinks down more than a foot. To this sound it is especially sensitive; the chirping of a sparrow, or a cricket, would affect the flame fifty feet away. To the lower musical notes the flame is utterly dead, but to the higher it is keenly alive. It makes no response to the letters O, U, nor to the labials, but it energetically responds to the sibilants. Like a living being, the flame trembles and cowers down at a hiss; it crouches at the noise made by jingling a bunch of keys; it shivers at the least shaking of a few tin-tacks, although the noise is so faint as scarcely to be heard; it dances in tune to the waltz played by a musical box, and it even beats time to the ticking of a watch." These phenomena have not yet been fully explained. That there is a relation between the rapidity of vibration of the column of gas as it passes the orifice of the burner,—and that of the vibration of the air caused by the sound,—is probable, and we have believed, been partially shown. A guitar string, as we know, answers to the note to which it is tuned, when sounded even in a low tone, in any part of a large room.

CHEAP OXYGEN AND CHLORINE.—M. Dumas says that by Mallett's process, 100 kilogrammes of protochloride of copper can be made to yield daily from 15 to 18 cubic meters of pure oxygen, at a cost of from 50 to 60 centimes. Quite as successful results were obtained in the separation of chlorine from hydrochloric acid. The same amount of protochloride furnished chlorine for the daily production of 300 kilogrammes of chloride of lime.

BARYTA WHITE.—Kuhlmann & Wagner's process for preparing this is as follows: The native sulphate is first reduced to sulphide of barium by calcining in iron crucibles, four parts, ground to a fine powder, with one part of powdered coal, and from five to eight per cent. of coal tar. After several hours, the mixture is removed from the crucibles and recalcined in a closed furnace to prevent oxidation. When cold, it is treated with hydrochloric acid, the liquid being kept alkaline to prevent the admission of other metals, and from the chloride of barium thus obtained, by means of sulphuric acid, is precipitated the pigment. This is a much more permanent white than can be prepared directly from barytes.

CHEMISTS' CEMENT.—Dr. Tollens has produced a modification of Sorel's cement,—which we have already mentioned,—that is not, like that in some cases, objectionable from its very quick "setting." He mixes equal weights of commercial zinc white and very fine sand, and makes the mixture into a paste with a solution of chloride of zinc having the density of 1.26. The mixture sets rapidly, but allows plenty of time for its application. As it resists the action of most agents, it will be very useful in the chemist's laboratory.—*Am. Artisan*.

DEATH OF AN EXPLORER.—Intelligence has lately been received in England of the death of Mr. Charles J. Anderson, the South African explorer. Mr. Anderson was the author of "Lake Ngami, or Discoveries in Southwest Africa," and also of "The Okavango River, a Narrative of Travel."

THE SELECT EIGHT.—Sir Roderick Murchison has been elected by the Academy of Sciences in Paris Foreign Member, in place of the late Professor Faraday. There are only eight such members, and the honor is regarded by men of science as the highest a man can receive. As a matter of form the decision has to be submitted to the Emperor for his confirmation.

INFUSORIA IN WHOOPING COUGH.

M. Poulet has examined, under the microscope, the vapor expired by several children suffering with this disease, and found it to contain, in all cases, a certain species of infusoria,—identical with that described by Muller as *Monas punctum*.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

76,160.—IMPROVEMENT IN SHINGLE MACHINES.—John F. Chambers, Calistoga, Cal.

I claim the combination and arrangement of the dog *b*, movable table *v*, eccentric shaft *a*, and levers *W*, for clamping and holding the shingle while it is being shaved; and in combination with the parts above claimed, I claim the sliding frame *h* and knife *i*, for shaving the shingle.

I also claim the combination and arrangement of the flat shaft *c*, pinion *g*, wheel *f*, ratchet *e*, and pawl *d*, to alternately raise and lower the end of the table *U*, to shave the shingles tapering.

The object of this invention is to provide an improved machine for riving and shaving shingles, which consists of a river, upon which the bolts of a proper length are clamped, and then split out. From this they are taken and placed on a roughened table, and a roller is made to pass over them, so as to hold them firmly down, one end of the table rising at the same time, so that the end of the shingle is firmly clamped and held by a dog, while the knife, passing directly behind the roller, shaves one side. One edge is jointed at the same time, after which the roller moves back, the table is depressed, and the shingle freed, when it may be turned over, and the other edge jointed. By a peculiar mechanism, one end of the table rises at each forward motion of the knife, so as to clamp the shingle, while the other end rises, at every alternate motion, thus giving the shingle the requisite taper. The machine may be worked by hand, horse, or steam power; but is intended to be portable and to be worked by horse power.

76,300.—IMPROVEMENT IN COMBINATION LOCK FOR DOOR.—Wm. C. Bussey, San Francisco, Cal.

I claim the bars *D*, *D*, and the lugs *a*, *a*, for retaining the bolt, together with the plate *F*, bar *d*, and spring *G*, in combination with the grooved annular tumblers, the whole constructed and operating substantially as and for the purpose described.

This invention relates to an improvement upon a lock for which letters patent were granted to Mr. Bussey, Sept. 5th, 1865, and consists in a novel method of securing the bolts when drawn, either forward or back. In the former patent the spindle and arbors were all put through from the inside, and secured by feather and groove to the knobs. This mode of construction carries the objection, that if by blows on the knob, the inner plate of the locks may have been broken, the lock might be so damaged by continual blows as to be disabled and rendered useless. The present invention remedies this defect.

76,325.—IMPROVEMENT IN FRICTION CLUTCH.—James B. Johnson and William H. Birch, San Francisco, Cal.

We claim the axle *A*, with its fast pulley *B*, and enclosing case *C*, with its inclined planes *c*, *c*, together with the rollers *a*, *a*, *a*, the whole constructed and operating substantially as and for the purposes described.

2. We claim the spring *d*, attached to the projection *b*, or its equivalent, when used in the clutch for insuring a prompt action of the rollers *a*, *a*, substantially as described.

The object of this invention is to provide an improved clutch, to be used upon hoisting apparatus, pulleys, ratchet-drills, or in any place where a free motion about the axle is desired in one direction, while it is desirable to have the whole mechanism move together in the other. This apparatus is designed to take the place of the pawl and ratchet, and consists of an axle, having keyed to it a pulley or roller, in a case which encloses it and turns loosely upon the same axle. The inner circumference of this case is formed so that a series of small rollers can be placed between the outside of the tight pulley and the inside of the case, and when the axle is turned in one direction, these rollers move easily between the case

and the pulley, and allow the case and its connections to remain stationary while the axle revolves; but when moved in the other direction, the rollers immediately bind on the pulleys, as the inner face of the case forms inclined planes, making a narrowing space in that direction, which effectually checks and holds the two together, so that they move as one pulley. By this apparatus, as short a motion as may be desirable can be readily made, as in the use of a ratchet-drill, while the combined motion in the opposite direction is instantly secured, without losing the length of a tooth, as is the case where the pawl and pinion are employed. Moreover this apparatus can be constructed much cheaper and more durable than any other for accomplishing the same purpose.

76,371.—IMPROVEMENT IN POTATO DIGGERS.—Benjamin P. Wright, San Francisco, Cal.

I claim a potato digger, having the spade *D*, *E*, the inclined carrying or elevating belt *G*, and the belts, *J*, *J*, together with the cleaning sieve *K*, the whole constructed and operating substantially as and for the purposes herein described.

The object of this invention is to provide a potato-digger which shall take the potatoes from the ground, free from dirt, and finally deposit them in any receptacle prepared for them. This is accomplished by constructing a frame mounted on wheels, and carrying in front a movable spade or digger, which takes the potatoes from the ground, and deposits them upon a carrying belt, by which they are taken to the rear of the machine, and dropped upon a shaking sieve or perforated table, where they are freed from the dirt, which falls through the sieve upon the ground, or they may pass more directly into any desired receptacle.

76,413.—PROCESS FOR EXTRACTING GOLD FROM ITS ORES.—Rudolph D'Heurcuse, San Francisco, Cal.

I claim the process herein described for extracting gold, by passing gold-bearing substances reduced to a fine powder, without previous alloy, through melted zinc, by introducing said substances below the surface of the melted zinc, as set forth.

76,447.—GANG PLOW.—W. F. Higgins and Jerome Perry, Watsonville, Cal.

We claim the combination of the inclined beams, *I* and *K*, braces or supporting bars *J* and *C*, adjustable pivoted bar *M*, and pivoted bars *H*, with each other, with the plow frame *F*, sulky or wagon-frame *A*, and axle *B*, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the lever *P*, connecting-bar *O*, and arm *N*, with each other, with the axle *B*, and framework of the sulky or wagon, substantially as herein shown and described, and for the purposes set forth.

76,578.—CULTIVATOR AND HARROW.—Simon Conrad, Petaluma, Cal.

I claim the connecting devices, by which I attach at pleasure, the cultivator or the harrow alternately to the truck or carriage, all as shown and described.

2. In combination with the above, the construction of the spindles on which the wheels of the truck are placed, so that they may be so placed on the axle as to increase or decrease the distance between the wheels, as may be desired, all as and for the purposes shown and described.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

SENATOR G. & S. M. Co.—May 8th. Capital stock, \$600,000; 6,000 shares, \$100 each. Trustees: N. Page, Daniel Murphy, John Hamill, John M. Kewen, and William Corcoran.

MAXWELL G. & S. M. Co.—May 8th. Capital stock, \$520,000; 2,100 shares \$200 each. Trustees: E. D. Keys, D. D. Colton, George Wallace, D. J. Williamson, and John Steinberger.

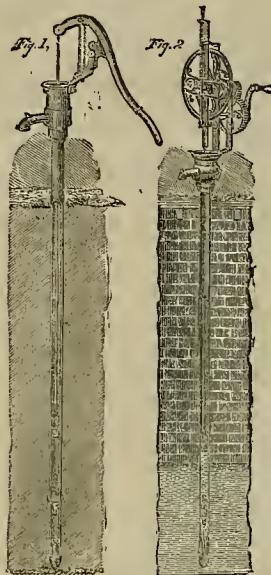
SPRING VALLEY HOMESTEAD ASSOCIATION. May 9th. Trustees: A. T. Fletcher, H. F. Williams, H. O. Howard, L. B. Dell, and E. W. Browne.

MARTIN'S STEAM ENGINE.—One of these engines, the principle and construction of which was fully described in the PRESS a few months since, has just been built at the Fulton Foundry, where it may be seen in operation. It is quite a mechanical curiosity and attracts much attention.

THE Mercantile Library Association are getting ready to move into their new building on Post street.

Avery's Patent Tube Well.

The London *Illustrated News*, for March 21st, gives a spirited illustration and description of an experiment made with this new method of sinking for water, at a point near the Thames Ditton Station of the London and Southwestern Railway. This is an American invention, known here as Avery's, but in England as Norton's tube well—so named from the English patentee. Tubes of various sizes were brought into requisition during the experiments alluded to. The first was made with an inch and a quarter tube, which was driven down sixteen feet, the pump affixed, and water raised at the rate of from ten to twelve gallons per minute, in just nineteen minutes from commencement of operations. The next tried was a two and a half inch tube, which was driven into the earth the same distance, and water obtained by pumping in twenty minutes. A third tube, four inches in diameter, was next tried, at an expense, however, of a longer time. These tubes were driven into the ground by means of a hammer, raised by pulleys, working upon a center column, very much as the ordinary pile-driver works in a frame.



After the tube is driven down, it is but a moment's work to screw the pump to the top of the tube, when, if the bottom of the tube has reached to the depth of from five to eight feet below the water level, water is immediately brought to the surface, mixed with sand at first, but running pure and clear after a few strokes of the pump. The bottom of the tube is armed with a long tapering steel or iron plug, which is forced into the ground in the same manner as a pile. Immediately above this plug, where the tube properly commences, the walls of the same are pierced with a great number of holes, through which the water is forced by the suction of the pump, or by its own gravity displacing the air in the tube. Whatever sand can pass through the holes is raised to the surface by the pumps; and as soon as all the loose sand is thus disposed of, the water runs perfectly clear.

The cost of putting down such a tube well is small in comparison with that required for sinking or boring ordinary wells. This invention, which has already been several times alluded to in these columns, was found of great service to the late British war expedition to Abyssinia, which fact rendered it very popular in England, where it is being very generally introduced. The Emperor Napoleon, after experimenting with it in his own private garden, purchased the right for Algeria.

It was also used, when occasion required, by our own army in the late war of rebellion. It might be quite generally and advantageously used in this city, especially where water can be reached without encountering rock. We give subjoined an illustration, which will give a very intelligent idea of the manner in which these wells are made to operate. Mr. S. P. Roberts, 318 Pine street, is agent for the patentee for this coast.

Order Bussey's Combination Burglar and Powder-Proof Keyless Lock!

REASONS WHY.

- 1st. It is the best Combination Lock known.
- 2d. It is impossible to pick it.
- 3d. It can be subjected to over half a million changes, and when run by a burglar, he is no nearer entrance than when he began.
- 4th. It has no key to lose.
- 5th. The more it is used the better it is liked.
- 6th. It has no signs, letters or figures, on its face.
- 7th. It is the simplest to understand.
- 8th. It is impossible to open it without knowing the set.
- 9th. It is least possible to get out of repair, as any one will be convinced on examination.
- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair.

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recommendation has been received by the inventor:

BANK OF BRITISH COLUMBIA,
San Francisco, May 24, 1866.

Recently two of Wm. C. Bussey's new Patent Combination Burglar-Proof Locks were placed upon the vault doors of the Bank of British Columbia. They are found to operate with all the efficiency claimed by the inventor and in every way meet our fullest approval. They were ordered upon mature deliberation, after strict investigation of their merits, in comparison with some of the most noted and popular old styles of combination locks.

We deem the lock entirely burglar-proof. It is strong in construction, without intricate or delicate parts, with simple and easy movement. We find no difficulty in either opening or closing it, nor in changing its combinations, which may be made almost innumerable. As a California invention of extraordinary merit, we take pleasure in recommending it to public attention, believing it to possess all the advantages which are claimed for it.

WM. H. TILLINGHAST, Sub Manager.
We do hereby certify, that Wm. C. Bussey's Combination Lock is the best Safe Lock in existence, and impossible to be picked. We have applied several to Vaults and Safes, to entire satisfaction of parties interested.

KITTEBICK & LEAVITT,
Plouer Iron Works, cor Fremont and Market sts.

SAN FRANCISCO, May 6, 1867.
I do hereby certify, that Mr. Wm. C. Bussey's Combination Lock is the simplest and strongest in construction, and the least possible to get out of repair; and for Safes and Vaults in every other respect as good as any other improved combination lock which I am acquainted with.
JOHN R. SIMS,
Vault Manufacturer, Oregon street.

JACKSON, April 27, 1867.
I, the undersigned, Sheriff of Amador County, do hereby certify that I am using one of Wm. C. Bussey's Keyless Combination Locks on my safe, which is made to draw four bolts with facility. I believe the lock to be the best lock ever invented, for the following reasons:

- 1st.—Because it is impossible for either burglar or expert to pick it.
- 2d.—The lock being constructed without a key-hole, it cannot be blown to pieces by powder.
- 3d.—There is no possibility of deranging the combination by breaking off, or attempting to drive the knobs into the safe. And it is in fact the nearest approach to perfection yet arrived at in the art of Lock making.

R. COBNER.
Attested by J. C. SHIPMAN, County Clerk.

JACKSON, April 27, 1867.
The undersigned, Treasurer of Amador County, do hereby certify, that I am using one of Wm. C. Bussey's Keyless Combination Locks. It is fastened to the outside door of the Treasurer's Safe. I have no fear of any bystander gaining a knowledge of the set of the combination, when locking or unlocking the same. If I desire to have access to the safe very few minutes, I can so adjust the combination as to open this lock in two seconds of time. I am exceedingly well pleased with the same, and I deem this lock to be all that the inventor claims for it.
OTTO WALTHER.
Attested by J. C. SHIPMAN, County Clerk.

CALIFORNIA LOCK AHEAD.—A special premium was awarded Mr. W. C. Bussey, for his superior Combination Powder and Burglar-Proof Safe Lock, at the recent State Fair. We are sure no award was ever more meritoriously bestowed. This Lock was described at length in the PRESS several months since. At that time it was adopted by several banking houses in this city, and we are now assured that the remarkable praise asserted in favor of the Lock at that time, have been confirmed since by its practical use. We feel an interest in this California invention, and wish to see it speedily meet with the success it is ultimately certain to attain. Mr. Bussey, having properly first fairly tested his lock in California, is now desirous of introducing it in the East, and offers to dispose of the right for several States at very reasonable rates.—(Mining and Scientific Press, Sept. 22, 1866.)

They are the only SAFE LOCK ever invented. Every State and County treasury vault, and every bank and business place should have one.—[Amador Ledger.]

This is a lock in which a series of rotating annular tumblers is employed, and it consists in a novel arrangement of such tumblers in connection with one or more arms connected with one or more bolts, whereby an extremely simple and effective lock is obtained, presenting an almost unlimited number of combinations. For which he was awarded a special premium at the State Fair.—[Sacramento Union.]

We, the undersigned, practical Locksmiths, unhesitatingly pronounce Bussey's Improved Combination Burglar Proof Lock to be the most reliable lock constructed.

F. MARK & C. FLEISHER,
No. 14 Post street.

REFERENCES:

R. COBNER, Sheriff.
O. WALTHER, Treasurer.
W. JENNING.
C. H. INGALLS, } Supervisors.
L. MC LAINE, }

Any good blacksmith can put this lock on safe doors. Bored or single old locks removed and this placed in their stead, to work one, two, three or four bolts, as the case may be.—[See page 30 in Pacific Coast Directory.]

A deaf or blind man can open this lock when he knows the set and understands the full manipulation, without any expert detecting the combination.
19-14ny11&13 lam

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Markleeville Miner, April 25th: The Rippon Co. is getting a change of rock in the tunnel, and making good headway toward the lode.

The L. X. L. Co. is still taking out ore, and has a large quantity at the mine which only waits the opening of the Scandinavian road to be taken to mill.

The Pennsylvania Co. continues to meet with encouraging symptoms of the ledge ahead, in the shape of quartz feeders and other indications.

The rock in the Alpine tunnel is still obdurate in its character.

The workmen in the Morning Star mine are 12 ft. into the black ore, in the drift from the 100-foot level, and 5 or 6 ft. with that from the 70-foot station, and not through yet. Piles of \$300 and \$400 ore are lying on the dump.

Amador County.

Jackson Ledger, May 2d: A little more than two years ago, we could only find but one quartz mill with 20 stamps, in the immediate vicinity of Jackson, but now we have five running, in all 120 stamps, the clatter of which can be distinctly heard from the door of the court-house. In addition to this, we have the chlorination works of Messrs. Coney & Bigelow, Ambler's process for concentrating sulphurets, besides two or three arrastras in successful operation.

The owners of the Kennedy mine, near this place, decided last Saturday to erect a 20-stamp steam mill near their shaft. Work will be commenced on it immediately.

Calaveras County.

Chronicle, May 2d: Brackett & Co. have got their new mill fairly to work, pounding gravel from their claim in Chili Ridge. It contains a battery of 5 stamps, propelled by means of a hardy gurdy wheel, with 250 ft. fall for the water. The mill works well in every part.

San Andreas Register, May 2d: Mr. Terwilliger recently showed us some magnificent gold-bearing quartz rock, from Washington district. The quartz is from Billy Smith's claim, and Mr. T. says that the rock now being taken from the Smith mine, is nearly as rich as the specimens which we saw. If so, the quartz must pay a fabulous amount to the ton.

Inyo County.

Los Angeles News, May 5th: A Mr. Piña has written from Owen's River to his friends in this city, advising them to emigrate to that locality immediately, as very rich gold quartz mines have just been discovered there. A party is reported to have cleaned up in one week's run of an arrastra, \$4,000. Information in regard to the existence of the gold was obtained from an Indian, who was given 300 pounds of hard bread.

Kern County.

Havilah Courier, April 25th: The St. John mine at Sageland, is one of the most productive quartz mines in California. Since the mill began to crush quartz, with the exception of about 6 weeks' stoppage for repairs, the mill has been turning out from \$3,000 to \$5,000 per week. On the 6th of the present month, Superintendent Taylor made one shipment of 112 lbs. of bullion, the result of 6 weeks' run.

The Burning Moscow mine, situated in the New El Dorado district, is now being worked with energy by its present owners, Messrs. Hammel & Denker. They are at present running a tunnel from which they take on an average 15 tons of rock per day, which prospects from \$50 to \$70 per ton.

The quartz mining interests of Kern County present a more flattering prospect than they ever have at any time since the discovery of quartz in this region. In addition to the St. John 12-stamp, and Dockweiler & Co's 5-stamp mill at Sageland, there are one or two other quartz mills in process of construction in that rich auriferous district. Rodgers, Keeney & Bridger, are pushing their 10-stamp mill to completion with great energy, and within a very short period of time, they will be crushing rock from their mine, (the Gold Hill Lode). This is probably, one of the most extensive and richest lodes in the county. The Gold Hill Co's mill will probably be in running order by the 1st of May. We also learn that Stearns, Low & Co. are preparing to erect a 10-stamp mill on the Esperanza lode, in Kelsoe Valley. This lode is a recent discovery, but it is said by judges to be immensely rich.

Napa County.

The Napa Register says: We have been shown some very fine specimens of cienna-

bar brought from the Star Co's claim at Pine Flat, near the Sonoma County line, by R. T. Montgomery, which compare favorably with the best we have ever seen. Prospectors have been at work for several weeks, and recent developments leave little room to doubt that a well defined ledge of ore has been struck.

Nevada County.

Transcript, April 29th: The company owning the Wagoner ledge are now putting up a small engine for the purpose of running an incline from the level of their tunnel, to open their ledge at a greater depth.

A large amount of hydraulic mining will be done on Deer Creek, near the Cascades, during the coming summer. The heavy snows have delayed operations.

The Nevada Quartz Mining Co. design erecting hoisting works on their ledge, for the purpose of opening a new level this summer. This is what was formerly known as the Soggs' mine. It is stated that a foundation is now being cleared near the mill for the new works.

Gazette, April 26th: The owners of the Fidelity mine are fully satisfied they have found a good paying body of rock. They have canceled their lease with the San Francisco parties, and will take the mine into their own hands.

Thomas Legge informs us that the Salathiel mill on Diamond Creek has been running all winter, but so thoroughly snowed in that communication with the outer world was totally impossible. They employ 20 men, and crush about seven tons of rock per day.

Smith & White have struck a vein of decomposed quartz at the head of Coyote street, that prospects exceedingly well. They have sunk a shaft 21 ft.

O. S. Cressy and C. H. Ayres have purchased of Clancy, Caldwell & Co. the Central and Union gravel claims at Blue Tent. The ground is 1,200 ft. deep and 200 ft. bank, and the price was \$3,500 cash. These gentlemen were old miners at Blue Tent.

Transcript, May 1st: Considerable feeling exists amongst the miners at Mooney's Flat in consequence of the action of a company under the name of the "Blue Gravel Lake Co.," locating, or, as it is characterized, "jumping," the claims on the Mooney Flat side.

May 2d: Neece & West have started up the machinery on the old Cozzens & Garber cement mine, between Red Dog and Yon Bet. They are now engaged in freeing the mine of water. As soon as this is done, they will commence drifting and breasting, for the purpose of taking out cement. This mine was worked for some time, but in consequence of the breaking in of the waters of the cañon and other misfortunes, success was not attained. The parties who have the mine are experienced miners, and as it is located upon the great Blue Lead, they will no doubt make it pay well. The other cement claims in the vicinity are paying well, and the hydraulic companies at Red Dog and Yon Bet are all at work with flattering prospects.

The miners at German Level, commonly called Dutch Flat, are jubilant over the striking of the Blue Lead in one of their claims. A number of companies are at work, and everything seems to indicate a prosperous mining season for that locality.

May 5th: The Sky High claim, near the Cascades on Deer Creek, is being worked by the Chalk Bluff Blue Gravel Co., and the prospects are good for a very large yield. A gentleman who visited the claim last week, informs us that he saw the water turned on for a prospect, and eight ounces were taken out in a half hour's run.

The Chalk Bluff Gravel Co. is doing first rate. They have been prospecting sufficiently to ascertain that they have an extensive range of gravel which will pay well. Adjoining this ground, Dr. Farnham is working with fine prospects. He has sunk a shaft 500 ft. ahead of the tunnel, and found unmistakable evidences of the Blue Lead. He will run the tunnel 200 ft., which will reach to the inside of the rim, and strike the main channel. Developments already made are sufficient to show the course and bearings of the Blue Lead, and to insure the success of the enterprise.

Gazette, May 2d: The main shaft in the Coe mine is down 100 ft. perpendicular, and 54 ft. on the incline, and the ledge at that point is 6½ ft. wide, and showing gold all the way through the rock. Eighteen loads crushed at Larimer's mill, last week, yielded \$508. They intend to keep Larimer's mill running constantly, and for that purpose have commenced hauling from a dump of 50 tons, which they have already taken out. The greatest excitement exists in Grass Valley in regard to the mine. We hear that a disposition to incorporate is be-

ing manifested by the owners of leads in that vicinity.

May 4th: The Miners at Scotch Flat are doing very well, the recent reduction of water rates by the South Yuba Canal Co. having imparted new life to the old diggings. We saw a mass of retorted gold at Mackie's bank, last Saturday, weighing 17 ounces, the result of six day's work by two men with a single pipe.

The machinery of the Merrimac quartz mill, which was located near the Glenbrook Park, having been purchased by McArthur & Co., was moved on Saturday to Cement Hill.

May 1st: From 22 loads of rock from the Golden Gate ledge, east of the Enreka Co's ledge, \$324.50 was realized. The ledge is owned by Howland, Richardson & Co., is three ft. thick, and has been worked for several years, but not to any great extent.

Grass Valley Union, April 30th: The Union Hill mine, after being idle, has again resumed work, and the prospects are flattering indeed. A new shaft has been started down, and after sinking 25 ft., the ledge was struck, from which rock has been taken which is truly magnificent. This rock is now being crushed at Laton's mill, and a partial clean up has been made. Altogether, the rock has paid \$50 per ton, and much of it is saved aside as specimen rock, which is worth, perhaps, \$1,000 per ton. With anything like a selection, the rock from the new shaft will average about \$200 per ton.

Placer County.

Dutch Flat Enquirer, May 1st: Preparations are being made to resume operations on the Dutch Flat shaft. We have no doubt, from representations made to us, that the owners in this company will be rewarded with as good prospects as those already obtained by the Franklin Co. when the shaft shall have been sunk deeper.

The Waukegan Co., who have the highest pressure in the place, had their water chest blown from the main, on Thursday last, to a distance of 100 yards.

Kidder & Co. made another good clean up during the week, and are now engaged building a new telegraph and extending their pipe, in order to obtain the pressure necessary to enable them to work their claims in a still more advantageous manner.

The Dutch Flat Co. made a remarkably fine clean up during the week, but owing to the reticence of those concerned, we are unable to state the amount.

The Rough and Ready claims commenced washing on yesterday. This is an old claim, and with the systematic manner in which operations will be carried on, we may confidently expect a large yield.

The paving of 16 sluice boxes in Mr. Taef's claim was washed out on Thursday last, greatly incommoding operations in that gentleman's claim as well as inconveniencing others below him.

Anhnra Stars and Stripes, April 30th: The editor, in an apparently jolly mood, informs his patrons with feelings of more than usual gratification, that the Blue Lead has been struck in that vicinity. The strata is about 25 ft. in depth and prospects from 12 to 25 cents to the pan.

Sierra County.

Downville Messenger, May 2d: Gus Larien, while working in Slate Castle ravine, last week, turned out a piece of gold worth \$150. He found one some time since that weighed \$148.

Si-kiyau County.

Yreka Union, April 25th: The miners on Hnmburg are still busily engaged in ground sluicing. The spring has been favorable for this work, and the owners of claims availing themselves of the opportunity, are getting a large amount of ground sluiced off. This will enable them to make a good summer's work. It will perhaps be three or four weeks yet before they are generally through sluicing and commence washing up.

Tuolumne County.

Sonora Democrat, May 2d: The editor has been taking a view of the various mining localities in the vicinity of Sonora, and gives us the following items:

The bed of Rattlesnake Creek, between Kirkwood's and Oak Flat, is being worked by Lewis Smith & Co., who are making good wages. It has been worked ten or twelve times before, always paying well. It is a sort of natural bedrock flume, and will continue to pay yearly as long as there is any mining done at Big Oak Flat.

We found Oak Flat, in general appearance, much the same as when we left it last fall. The late severe winter made business there, as everywhere else in the country, very dull. But on the opening of the spring, times became somewhat livelier, and the prospects are that in Oak Flat, Deer Flat and the Garrotes, there will be considerable activity in quartz and placer min-

ing this summer. The Golden Rock Ditch, which had been dry during the winter on account of slides, etc., occasioned by the rain storms, is now running a full head of water and supplies all the mining camps along the line, to Boneyard and Pino Blanco.

At Deer Flat, one mile from Big Oak Flat, there is a little placer mining being done.

Mr. Snow has leased his partner's interest in the Cosmopolite mine, and is working the mine on his own account. We visited the mine, went all through its shafts and tunnels, and we were well pleased with the appearance of the vein and the character of the rock which was being taken out and crushed. Mr. Snow was not at the mine when we visited it, and we did not learn how much per ton the rock would average. But, from the rich specimens we saw, not only then, but also two years ago, we think that it would be safe to put the figure at \$30 or \$35 per ton. The vein is large and well defined, varying from 3 to 7 or 8 feet in thickness, is easily worked and very accessibly located.

Mr. Hiskey, Superintendent of the Ophir mill at Frankfort, Nevada, paid our city a visit a few months back, and remained a short while prospecting the different quartz veins in the neighborhood. He has a new mode of saving gold, by which he can make quartz rock that won't pay by the old process, pay handsomely. He agreed with Mr. P. M. Bacon of this city, to take the old Star mine near American Camp, and prospect it till June, and if he finds the lead extensive enough, to lease the same and give bonds to pay Mr. B., 80 per cent. fire assay, of all gold taken out. Some of the rock assays as high as \$5,000. He accordingly took charge of the mill, but, being telegraphed from Frankfort to return immediately and take charge of the Ophir mill which had got out of order and been stopped awaiting his return, he left Mr. Morton in charge to hire men and commence operations. Mr. M. has been busy for the past two months sinking the old shaft down 70 ft., and running tunnels, and has struck rock rich with gold. Thirty tons of rock has been taken out by Mr. Morton from the bottom of the new shaft, and will be crashed this week.

Yuba County.

Marysville Appeal, May 1st: The Rattlesnake Co. in Brown's Valley seem finally determined to do their business on a strict cash basis. They are again out with another assessment, being fully aware that their new mill will be running next week on good, if not altogether on rich quartz. The Jefferson has again a good ledge, 3 ft. thick, at the bottom of their main shaft—a depth of about 700 ft. There is still plenty of water in all the mines, but for the last few days they have been less troubled.

BRITISH COLUMBIA.

The *Alta* of this city gives the following: A letter from Cariboo, dated March 25th, says that the claims below the Baldhead were then nearly all working. The Barker Co. were to commence on their drain the following week. New strikes on Mosquito Gulch and vicinity were reported every day. The claims in Red Gulch had commenced to pay. One company took \$1,000 out of four sets of timbers. The claims on Mosquito were yielding good pay. The Minnehaha divided nearly 10 ounces to the share. The Willow divided 20 ounces to each share. Rich pay has been had on Wilson Gulch, about eight miles from Barkerville, and a little west of Mosquito Gulch. Sixty good men have gone out there. A ball was to be given on the 26th of March, to procure funds to build a part of the bulkhead of the drain near Cameron. A subscription list started for the same purpose, yielded nearly \$1,000. A thaw had set in, and the weather was fine and mild.

COLORADO.

Denver News, April 15th: Mr. L. Seaman has returned from the east, where he has been organizing the Snyder Co. The company owns the Silver, Eagle, Durango and Atlanta lodes, all near Georgetown. It is proposed to put up reduction works this year at a cost of \$100,000.

Charlie Slade came down from Granite district yesterday. He informs us that the two shafts on the Hattie Jane, are 60 and 75 ft. deep. On the Yankee Blade the shaft is 75 ft. deep, and the vein of ore fully 3 ft. wide. Last week a new and very rich discovery was made a few hundred yards east and south of the Yankee Blade lode. It is called the Midas lode, and was found by Mr. Fletcher. The quartz is covered with free gold.

Oro City correspondence of same: The prospects for mining in this country for next season are very flattering for both lode and gulch mining.

By the middle of next month the roads

will be open to Cash Creek and Dayton, and up the Arkansas River as far as the mouth of California Gulch, and then we may look for active preparations for a successful season's operations in gulch mining.

Georgetown Mines: The statement that work had ceased on the Baker mine was a mistake. Work has only been suspended in the upper adit. The shaft and two lower adits are being driven as rapidly as possible. Huopeden, Walters & Co. have become successors to Garrott, Martine & Co., in the reduction works heretofore conducted by the last named firm.

Central City Register, April 16th: Mr. Bixby brought us yesterday a fine sample of copper ore from near the middle St. Vrain. It is mixed sulphuret and carbonate, and will be found to contain about 30 per cent. of copper.

Messrs. Harry & Frazier had assays made at the Territorial assay office yesterday, of average ores from the property on the Gregory, worked by them. The result was \$52.24 in gold, and \$15.79 in silver, or a total of \$71.03 per ton, of 2,000 lbs. The ore contains considerable copper also.

The Ophir mine is turning out some very fine ore, and is being worked with considerable profit.

Mr. Field is about to start up his mill above Black Hawk. He will run on his own ore from the Bobtail lode.

The Ni-wot Co. recently discovered that a large vein of ore had been left standing on one wall of their mine, and commenced taking it down; shortly afterward a scale of 15 ft. more caved in from the same side, revealing another large and valuable seam of ore, which the mill has been set to work crushing. No granite walls have yet been found.

The Baker mill in Chase Gulch is running night and day, not stopping from one month's end to another. Mr. Sabiu has it so arranged that when he desires to clean up he is not compelled to stop the engine, but hooks up one stamp after another till all there are in a single battery are suspended; when the battery is cleaned up they are again set in motion. He is preparing to put up a single immense stamp, with five ft. fall, to be used as a rock breaker. It is also proposed to put up 20 more stamps this season. The mill is doing a good business on the Union Co's ore.

The Barrett Brothers are erecting a stamp mill on the Winnebago, to crush all second quality rock. They are now blasting out a foundation in the solid rock, and will have stone enough on the spot to build the foundation. They are entirely dependent on the mine for water. The main shaft on their mine is being thoroughly retimbered and boxed, so as to make it one of the safest in the mountains.

Herald, April 15th: The California works shipped two bars of silver to-day, one of which contained 201.80 ozs., the other 346.85 ozs. The smaller one is worth \$405, and the larger one \$237.

Quite a large party of miners are making good wages at the mouth of Chicago Creek.

Mr. Peregrine's claim on the Running lode is opening out into a very fine body of iron. He has reached a depth of 65 ft., and has commenced two levels, and will continue to sink the shaft.

Moore & Myers are running on one section of the Wilson mill, Mountain City, on ore from the Bates lode, for Mr. H. P. Cowenhoven. They have not cleaned up the batteries since commencing the run, but expect that it will yield satisfactory results.

The Ophir Co. shipped this week a report worth \$1,900.

Col. Tannatt has leased the Empire mill for six months, and is running it on ore from the Bates lode. We learn that he has a large crevice of pay material in the west end of the claim.

The Black Hawk Co. are running the Consolidated Gregory mine pump. This company expect soon to have their new pump, which they are putting into No. 2, Gregory shaft, in order, for draining their mine.

We saw yesterday at George T. Clark & Co's, 164 ozs. of small retorts, the results of various runs during the past week.

IDAHO.

World, April 18th: Letter from Willow Creek district: There is no water, and despite the assurances of the ditch owners, it is not believed that anything like a sufficient quantity will be afforded this year.

The miners were to hold a meeting, April 12th, to consider the propriety of laying over their claims until next season.

April 25th: Last week a clean-up was made at the Elkhorn mill, beyond Pioneer City, of the crushing of a lot of unassorted rock and debris cast aside last fall, and, to the astonishment of the Superintendent, the stuff gave the handsome product of

138 ozs. The mill has been at work upon good ore since, night and day, and the next clean-up will be likely to yield richly.

By word from Deadwood Camp during the week, we learn that there is about 2½ ft. of snow still in the Basin, and consequently mining had not commenced. The camp is filling up with miners and others, and it will be a lively place when the season for work begins.

Mining has pretty generally been commenced about Pioneer, and with good success so far as known.

Owyhee Aralanche, April 25th: The editor has been visiting some of the mines near Silver City. He says: The vein matter of the Poorman is of a nature very peculiar, so soft that it is easily taken out with picks without the aid of blasting; consequently powder smoke and its attendant inconveniences are entirely avoided. It is a wonderful mine, and is at present yielding ore fabulously rich in both gold and silver. In one of the stopes overhead we broke off a piece, from which we obtained two specimens about the size of hen's eggs of almost pure silver, and worth several dollars. A huge pile of ore was on the dump, from which a snug fortune could be made in a short time by merely panning out. Mr. Walbridge, the superintendent, is putting the mine in such a shape that it can be worked to better advantage than ever before. A splendid shaft is being sunk about 300 ft. north of the present hoisting works.

The skeptical should visit the Golden Chariot mine, and feast their eyes on several tons of "specimens" that can there be seen. Scarcely any of the quartz but in which gold can be plainly seen with the naked eye, and to tell of the exceeding richness of some of it would sound like fable. Work is going on night and day. Since the condition of the roads has rendered hauling impossible, the ore-house has been filled, and large quantities piled up on the outside, estimated in all at over 400 tons. The road will soon be in proper shape for hauling to the Sinker mill, which will then commence crushing Golden Chariot ore.

Work is progressing briskly on the Ida Elmore, and the character of the ore very much resembles that of the Poorman. Considering the short time the Ida Elmore has been working, it is one of the best developed mines in the Territory.

The whim at the New York shaft is in operation day and night, hoisting water from the mine.

The Oro Fino Co. are anxiously waiting the arrival of their steam hoisting works. The whim erected temporarily has been repaired and enlarged, and will be kept running until the engine arrives.

Work has been suspended on the Woodstock for a few days, till the surface water runs off.

A tunnel is being run for the purpose of tapping the Minnesota ledge.

Fred. Reuter and others have struck a new ledge on War Eagle, above the Chariot and Elmore. The discovery is called the F. H. Reuter, and is said to be nearly two feet wide on the surface, with croppings rich in gold. An extension has already been located, and a tunnel started thereon.

Stepping into McDonald's assay office, the other day, we saw a pile of Ida Elmore bullion weighing 7,164 ozs., and worth about \$50,000. One of these bricks weighed 1,617 ozs., which is believed to be the largest ever cast in Idaho Territory.

Oro Fino Camp is now lively. The miners are gathering gold while the water runs.

NEVADA.

Esmeralda.

Aurora Union, April 25th: The work of prospecting goes bravely on at Castle Peak, and it will probably be several months before the main lode will be reached. Several new companies will commence operations as soon as the snow melts sufficiently to permit them to work.

On Wednesday last we visited several of the mines on Middle Hill, and were much pleased with what we saw. The Middle Hill claim, which has been lately opened by the DeKay brothers, presents a fine body of ore; and if the vein should continue to improve as it has for the past few feet, they will have the best paying mine in this section. The Groton mine, on the same hill, and about 800 ft. distant from the mine above mentioned, gives promise of proving a remunerative mine. Messrs. Tade, Bodle and Neidy, the owners, have tried a small crushing, and found that the ore was better than they expected. There are quite a number of mines in this immediate vicinity, which are being worked by their owners and paying well.

It is reported that Col. Catherwood has made arrangements for the erection of a mill upon the Palmetto mine immediately.

Although but few miners have been prospecting in Columbus district, several very rich mines have been opened, and all that is needed are mills to crush the ore. We have been informed that Col. Young's mill will shortly be in running order, and that another mill will be erected this spring.

Humboldt.

Virginia Enterprise, April 30th: J. Moore Williams, who left this city in November last on a prospecting trip, has returned, and reports having found a valuable mine in Humboldt county. The lead is situated about 10 miles south of Unionville, within 300 yards of the stage road. There is an abundance of wood and water in the immediate vicinity. Mr. Williams calls his lead the Lady Murray, and located but 400 ft. on it, all of which he owns himself. He says he likes to be able to do as he pleases with a mine he works. As the claim now stands, he has but little trouble in getting the company together, and when together, its councils are marked by a striking unanimity of opinion. We were shown yesterday an assay made by Leopold Kuh, of this city, of ore as it averages throughout the lead, which shows it to contain per ton in gold \$52.96, and in silver, \$15.22; total, \$68.18. The poorest piece of ore he could find in the lead, and which he thought worthless, yielded at the rate of \$23.99 per ton, mostly gold. It is unusual to find gold-bearing veins in the Humboldt country, most of the leads in that region containing argentiferous galena and antimonial ores of silver. As yet Mr. Williams has only sunk upon his ledge to the depth of about 7 ft. In going down it widens rapidly, and will probably prove to be a very large lead, as it was "blind" on the surface, which accounts for its not having been discovered sooner.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Gold Hill News, April 24th: The croppings of the Gould & Curry still yield some very good gold ore, which is being mined to a limited extent near the old surface cave of the mine. For several months past, Mr. Patten has been engaged with a force of hands extracting some very good pay ore from near the surface of the Savage claim, just south of the Gould & Curry line, by means of a small double shaft 180 ft. deep, connecting with the old works of the mine. The hoisting is done by a whim, propelled by a horse. The old Chollar croppings and vicinity still continue to yield goodly quantities of very fair ore, not very rich, but paying, nevertheless. It will be several years before the croppings of the Comstock are worked out.

Enterprise, April 25th: We understand that the Imperial-Empire Co. have cut into the east clay wall, tapping a large quantity of water. This shows that they are not far from their lead.

Silver Bend Reporter, April 25th: Antonio Borges is erecting his mill at the spring, half a mile south of the El Dorado. It will have a battery of five stamps, and be capable of reducing five to six tons of ore per day. It will probably be in running order in ten days or two weeks.

Enterprise, April 30th: It appears that the shaft of the new Imperial-Empire will not be so readily drained as we were led to believe. There was no less than six ft. of water on the track doors of the west drifts yesterday morning, and there is still a strong influx of water from the lead. The shaft will drain not only the Imperial and Empire claims, but also the Alpha, Exchequer, and other mines in the vicinity to the depth of 900 feet.

May 1st: Wells, Fargo & Co. shipped from their Gold Hill office, during the month of April, the sum of \$516,770.81 in bullion.

May 2d: Wells, Fargo & Co. shipped from their office in this city and Gold Hill, during the past week, 7,653 pounds of assayed bullion, valued at \$234,469.35.

The Yellow Jacket, Kentuck & Crown Point Cos., Gold Hill, have combined and are building a large car track about 100 ft. in length, in order to convey to a distance from their mines the waste rock, accumulations which are likely soon to seriously incommode them in their operations about their several shafts and ore dumps.

Gold Hill News, April 30th: There was shipped from Wells, Fargo & Co's Gold Hill office, this morning, 14 bars of bullion, weighing 1,170 pounds, and of the assayed value of \$29,639.80.

The Gould & Curry shaft is being pumped out preparatory to a fresh attack upon the lower levels of that mine. The water had risen in the shaft to a depth of nearly 500 feet.

May 1st: There was shipped from Wells, Fargo & Co's Gold Hill office, this morning, 5 bars of bullion, weighing 367 pounds, and of the assayed value of \$12,453.25.

OREGON.

Dalles Mountaineer, April 18th: Messrs. Bloch, Miller & Co. recently made an assay of a lot of dust from the Libby Creek mines, which proves to be of very fine quality, assaying \$19.01 per ounce.

The trail between Canyon City and Willow Creek is now open, and large numbers of men are passing over it daily to mining camps in that vicinity. The miners are preparing for the spring sluicing, but as yet have done but little work.

Jacksonville Sentinel, April 22d: The Occidental Quartz mill has been running the past week, and as soon as the "clean up" from the run just made is completed, the mill will be set in motion again. The amount of quartz crushed last week, was 94 tons, from the Timber Gulch ledge. The mill is driven by a 30-horse power engine. The crushing and reducing machinery consists of two high mortar batteries, five stamps each, two Rettinger boxes, two Hungerford's improved concentrators, and one seven-foot amalgamating tub, arranged similar to an arrastra.

Umatilla Press, April 18th: A party of 20 men from Grant county, in passing over the mountains to the North Fork of John Day's River, struck some very rich placer diggings, on what is known as Deep Creek. The parties were provided with mining and blacksmithing tools, provisions, etc., and accordingly struck camp and set to work, and are all busily engaged at present in taking out big pay. There is said to be plenty of the same kind of ground.

NEW MEXICO.

A correspondent of the Central City (Col.) **Register,** writing from the Cimarron mines, dated March 23d, says: There has been about 30 miles of gulch claims taken up within a scope of country of five miles square. Outside of this no prospecting has been done. Robinson & Co., known as the Colorado Co., are about the only ones that have their claims thoroughly opened. This company commenced work in July last, and in three months took out \$33,000. I prospect their claim and obtained 30 cents to the pan. There are many other parties that claim they can get as good a prospect, but did not get here in time last season to do anything, on account of the scarcity of water. All possible arrangements for early mining are being prosecuted with vigor, and all are anxiously awaiting the coming of spring. This summer will be sufficient to test the country thoroughly. At present no one knows its richness or extent.

At present there are about 2,000 persons here, and more coming daily.

In another portion of the same paper we find the following: The reports lately received from the Cimarron mines is quite unfavorable, and already people are beginning to come back disgusted. A few are still sanguine that they are to make their fortunes there. The great expectations which induced men to go there, appear likely to fail.

GOLD AND QUARTZ—NEW THEORY.—At a late meeting of the Polytechnic Association of the American Institute, Prof. A. L. Fleury gave a lecture, in which he enunciated a new gold and quartz theory of his own. It is thus reported by the *Artisan*:

The speaker gave, first, his own idea in regard to the formation of quartz from sulphide of silicon, which he conceived as having been formed by the action of sulphur and carbon vapors on heated silicates. Sulphide of silicon, when acted upon by water, being decomposed into a hydrate of silica, and that again with the dissolving sulphureted hydrogen had been thrown up by steam pressure into the cavities of the rocks, where it gelatinized and hardened. He then stated that it was his belief that gold is present in nature in an allotropic, hitherto unknown amorphous condition. This idea was illustrated by comparison with the two allotropic conditions of carbon—lamp-black and plumbeo—the first being amorphous, the latter metallic; lamp-black being light, oxidizable—plumbeo being heavy, and withstanding chemical action, similar to gold in its metallic state. He then explained his own views and ideas in regard to the presence of sulphides of gold in nature, detailing also some experiments that led him to think that gold exists in considerable quantity as a silicate of the oxide of gold, which had hitherto been overlooked.

DEATH OF DERRINGER.—Henry Derringer, the inventor of the celebrated pocket pistol which bears his name, died recently in Philadelphia, aged eighty-one years.

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.

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Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting
Agent, and all subscriptions, or other favors extended to
him, will be duly acknowledged at this office. Jan. 11, 1868
Mr. C. T. Hancey is our duly authorized agent for
Sacramento County. Nov. 29, 1867.
Dr. L. G. Yates is our duly authorized traveling
agent. July 6, 1867.
Mr. A. B. Butler is a duly authorized traveling
agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, May 9, 1868.

Notices to Correspondents.

SMELTER.—Cryolite must be the novel flux respecting which you inquire. Hitherto it has only been found in available quantities for economical purposes at Evigtok, Greenland, where a vein eighty feet wide has been worked, and has been traced to the extent of 300 feet in length; it dips to the south at an angle of nearly 45°, and runs nearly east and west. There are a considerable number of minerals which accompany it which are highly interesting viz, feldspar, trap, arsenical pyrites, quartz, argentiferous galena (containing 85% per cent. lead, and 45 ozs. silver to the ton of ore,) copper pyrites, blende; sparry iron ore, also, is found to accompany the vein. Gneiss is the inclosing rock of all these minerals. The central upper part of the vein is quite white, but the portions abutting against the gneiss, are much decomposed, having many cavities which contain loose crystals of sparry iron ore. At a depth of ten feet from the surface, the cryolite, although free from foreign matter, assumes a darker color, and at fifteen feet approaches a black one, and becomes more translucent and compact. The deeper the sinkings that have been made, the darker the color has been found, which circumstance has given rise to the opinion that the original appearance of cryolite was black, and will so be found at a moderate depth from the surface.

QUIZZICAL, Mariposa.—We are not able to afford any additional information respecting the real objects intended to be achieved by the Chinese Embassy, lately arrived and now on its way to Washington,—other than what Mr. Burlingame felt himself at liberty to disclose at the banquet, recently given to that Embassy in this city. Mr. Burlingame says it means "progress;" we are afraid, however, a progress of a rather snail-like character. A modification of some of the harsher features as against China, now found in the existing treaty, no doubt forms one of the chief objects. Another may possibly consist in requesting all foreign occupation of Chinese territory, to be given up. If the latter is conceded so as to abandon the government of Chinese waters entirely to the Chinese, as is only right and proper, guarantees will no doubt be required, that the governing powers of China will see that their waters are free from piracy;—in the present state of China, we suspect the Chinese authorities will find that somewhat difficult of accomplishment.

OCCIDENTAL.—The Cohré copper mine, of Cuba, is associated towards the south with a considerable mountain chain, composed of highly calcareous porphyritic rocks, passing into and associated with basalt and a peculiar conglomerate, and on the north, though at some distance, with a range of hard limestone beds. The mineral veins occur in large grained porphyry, near its contact with a coarse conglomerate; both conglomerate and porphyry being extremely calcareous. The vicinity of these mines is remarkable for the frequent occurrence of earthquakes; two months rarely elapsing without a shock of that description being sensibly felt throughout the surrounding district.

PALEOLOGUS.—The remains of the Mnsk Ox, in a fossilized state, have been found in England in the valley of the Thames, among a series of gravel beds, belonging to the Tertiary formation. Professor Owen, comparing the fossil and crania of the recent and fossil varieties, states that the horn-core in the recent, is less vertically deflected, and is bent in a slight degree more vertically outwards and forwards at the tip.

The American Anti-Incrustator.

Various plans have been proposed for the prevention of the formation of scale in steam boilers,—and various recipes published for the preparation of mixtures, which through their chemical reaction, might cause the objectionable sediment to be dissolved as fast as formed. But all these have been found wanting. Not only do different cases require different mixtures, but the expense and trouble of making such mixtures are serious objections to their use. It may well be believed, therefore, that the simple and beautiful arrangement named in our heading, by which the "American Anti-Incrustation Company" propose to accomplish the desired end, has attracted extraordinary attention. It consists merely of a bar magnet of hardened steel, "suspended horizontally within the boiler, in the upper part of the steam-space,—having its south pole connected with the boiler, and the north pole supported by an insulated hook." It is found that if the outlet for the steam is so situated, that the steam shall pass along this magnetic bar, so placed, in its flow, the deposition of scale is effectually prevented; while on the other hand, if the bar be reversed, so that its north pole is in connection with the boiler, and its south pole towards the point of steam discharge, the deposit takes place with great rapidity. Whatever may be the theory for this, such is the fact; and Dr. Charles Cresson, of Philadelphia, who has made an examination of the apparatus with a view to its explanation, attempts so to do in a paper which has been published in the *Journal of the Franklin Institute*. The following is, as we understand it, the gist of his theory; although it is by no means clearly enunciated.

The thermal currents constantly created within the boiler, by the constantly varying temperature of the particles of water with reference to each other and to the heated shell of the boiler, are in fact electrical currents. The direction of these currents is alternately from the shell to the water, and *vice versa*. When they are from the water to the shell, there is a tendency to the deposit of the matters contained in solution in the water. The object is therefore to maintain a continuous electrical current from the shell to the water. Now the direction of the electrical current in the magnetic bar aforesaid, being, according to the well-known law, at right angles to the bar, by virtue of its polarity,—that is, circling spirally about it, in a direction towards its north pole,—it may be conceived that the friction of the steam, outflowing in the same direction, having also,—as it has—an electrical current developed in it by the magnet itself, may tend to increase, and to keep up, this tendency of the current from the shell of the boiler which is connected with it,—towards the contents of that boiler; rather than to allow the otherwise intermittent current in the reverse direction,—or towards the shell. The magnet therefore has a controlling influence over the thermo-electrical currents, rather by maintaining their continuity in one direction, than by any production of force in that direction. If this be so, we can understand that the reversal of the bar would accelerate the deposit of scale; increasing as it would, the tendency of the current towards the boiler, which in that case, is connected with the north pole of the bar. But for the bar, any change in the condition of the currents playing about within the boiler, by a change in the temperature or electrical condition of its contents, such as might be produced by a slight check to the fires underneath, or the trying of the gauge-cocks, might permit the deposition of scale to be commenced,—for the tendency in such case is towards the boiler, that being the best conductor. In support of this it may be stated, that it is found that if a steel bar, not magnetic, be substituted for the mag-

netic bar, it will gradually become magnetic,—but will have its north pole connected with the boiler. It is also true, that even if a perfect magnetic bar be used, it will, if not occasionally re-magnetized, eventually become reversed as regards its polarity. For this reason it is proposed to use, instead of the simple form of the apparatus which we have described,—that of the permanent magnet,—a powerful electro-magnet; for in this the activity is constantly renewed. The experiments with such have shown an extraordinary increase as regards rapidity of action; producing, in a few hours, results which otherwise would have required as many weeks.

We are reminded by this plan for the prevention of incrustation in steam boilers, of the experiments of M. Duchemin; who, in connection with a commission appointed by the French Government, proposes to prevent the oxidation which goes on so rapidly upon the armor-plates of iron-clads lying at rest in harbor, by connecting every part of such armor with the negative pole of an electric pile placed in the sea-water of the harbor,—which water is itself the exciting liquid of the pile. He finds that not only oxidation, but also the accumulation of barnacles, can be prevented by this means. We shall again refer to his experiments.

THE WHEAT CROP OF 1868.—The shipment of wheat from this port for the harvest-year ending June 31, 1868, will be but little, if any, short of that for the previous year. The shipments of wheat and flour, reduced to wheat, had reached 229,500 tons at the close of April. During the months of May and June of last year there were shipped 35,000 tons. Should the same amount leave this port during the same period of the present year, our shipments for 1868 will reach 264,500 tons—or 10,000 tons more than were shipped during the harvest-year of 1866-7. But as wheat is now coming in very slowly, it is quite evident that the shipments for the present and next month will fall materially short of the corresponding period a year ago. If we allow a falling off of fully one-half (a liberal allowance), we shall come within 7,500 tons of last year—a small figure when compared with the total of 247,000 tons, which will then be the amount for the year. The prospects for the coming harvest are most unusually flattering, and the breadth of ground sown is vastly greater than ever before; so that we may reasonably anticipate a most material increase for 1868-9 over any previous year.

Wheat has now become as much one of the regular productions of the State as gold; and it bids fair ere long to fully equal the latter in value. A careful comparative examination of the cost of producing wheat in this and the States of the Mississippi, with the expenses of transportation added from San Francisco or Chicago to New York, makes a decidedly favorable showing for a greater profit on California wheat; and this, too, with our rates of freight *via* Cape Horn advanced from fifty to seventy-five per cent. over what they were three years ago. The reduction in freight, which must be reached, and the improved facilities for handling the wheat here, now in process of being provided, establishes, beyond all possibility of a doubt, the status of California as among the most favored of the wheat-growing districts in the world. With regard to the extent of our wheat-growing lands, it is well known that we have but just made a beginning in bringing them under cultivation. Vast regions of open country, equal in extent to some of the Eastern States, yet remain virgin soil, waiting only for the extension of railroads, already under way, to bring them into easy connection with tide water. California will, in time, rank fully as high for her agricultural as she now does for her mineral productions.

Balance Docks and Dry Docks.

One of the first essentials to a seaport of any commercial pretensions, is a ready and convenient means for the purpose of examining and repairing ships. It is not many years since the only conveniences for such work were a smooth beach, where ships might be safely laid up at high tide; ordinary "ways," where they might be hauled up in a "cradle," or the still more straining and destructive method of bringing the alternate sides of a ship out of water by "careening." Less than fifty years ago, 2,000 men were required to raise an English 74-gun ship upon the "ways." Less than twenty men will place a ship in an equally favorable position for examination or repairing by the modern dock conveniences for such work.

Dry docks, dug out from the bank, into which a ship may be floated, the gates closed and water pumped out, were the next improvement, and first introduced in England. Some of the most expensive engineering works in either England or America are of this description. The finest dry docks in the world are found in the United States.

This mode of dockage is necessarily expensive, from the large original cost of the structure, as well as from the great amount of pumping required to free the dock from water after the ship is within it. This last item is increased with the decrease of the size of the ship. The great expense attendant upon this mode of dockage led to the construction of floating dry docks, which are of American origin; at least the "balance dock" was invented and patented by an American—a Mr. Gilbert. This is now considered the best and cheapest form of docks which can be constructed. It consists simply of a large closed vessel, built in the form of a parallelogram, of any desired length and breadth, with hollow side walls, rising some twenty-five feet, more or less, according to the other dimensions of the structure, so that when viewed endwise it has the appearance of the letter U. When called into requisition, the dock is submerged, by letting the water into the hollow walls and bottom, so that only a few feet of the upper portion of the walls remain above the surface. The ship is then floated in between the two walls, and the pumps, which are operated upon the top of the walls, are set in motion to pump out the water by the aid of steam. The ship is thus lifted bodily out of her element by the buoyancy of the dock—the water in which she floats running freely out at either end. It will thus be seen that in the use of this dock an amount of water only equal to the weight of the ship has to be pumped, while in the use of a dry dock, all the water surrounding and floating the ship has to be removed by the pumps.

Docks on this principle are sometimes built in sections, called "sectional docks," two or more of which are brought together, according to the size of the ship to be raised; but there are many inconveniences attending such structures, which we have not space at present to point out. The "balance dock" is so called from the readiness with which it can be trimmed or balanced, so as to bring the ship easily up out of the water. This is effected by constructing the interior with several compartments, which may be kept separate or connected at will, so that more or less water can be pumped from one end or the other, as the ship may, on coming up, be found heavier or lighter at either stem or stern.

These docks are coming into very general use in the Atlantic cities, and at least three have been built in Europe,—one each at Havre and Marseilles, and one in some port in Spain. There is also another in use at Havana, which was built in New Orleans. The largest yet constructed is in New York, and is 325 feet long by 100 broad. This

dock has taken up a ship of 6,000 tons burden, weighing 3,680 tons.

This dock recently built at Oakland Point is one of this description. It was built by an association of lumbermen, under the superintendence of Capt. A. M. Simpson, and was to have been employed near where it now lies, at the foot of Beale street, just north of the P. M. S. S. Co's wharf.

The Association which built it, however, found that its use there would greatly interfere with the approach to the docks of the P. M. S. S. Co's steamers and other shipping, and having received a favorable offer of purchase from the San Francisco Dry Dock Company, have sold to that Association, and the dock will be employed at Hunter's Point, in the little cove just this side of the Dry Dock now in process of construction on the Point. The cost of this dock has been about \$110,000. By this purchase, that company will have the control of the only two docks of any considerable size with which this city will probably be provided for many years to come. It is to be hoped that so judicious a tariff will be put upon their use as will avoid the necessity of any further outlay of capital in this direction, until the growth of the city shall exceed the capacity of these two docks to satisfy the demands of our growing commerce.

This dock has been built in the most substantial manner, strongly braced and timbered throughout. It is now fully completed, and will soon be removed from its present locality to Hunter's Point, where the piers are already in process of construction, between which it is to be operated. It is of sufficient capacity for any sailing vessel coming to our harbor, except such monsters as the *Great Republic*, and then only on account of her length; it will lift 4,000 tons, and accommodate a keel of 215 feet, at twenty feet draught. It will be ballasted with 800 tons of rock, and will hold 2,300 tons of water, let in by gates on the side; the water will be contained in twelve reservoirs or compartments, and can be pumped out of any one or all of them at the same time, though the usual plan will be to work the four pumps on each side, pumping from the reservoirs of each side, and balancing the dock by stopping one set if necessary; if one set should be out of order then all the sliding gates would be opened, and one set of pumps could do the discharging. Each set of four pumps has a separate engine and boiler, all made by Hinckley & Co., Fulton Foundry. The engines are slide valves with the Pickering governor, and are twelve inches in diameter, with twenty-four inches stroke; the pumps are of brass, twenty inches in diameter and twenty-four inches stroke, worked by large cog wheels. When working together the eight pumps will discharge 77,000 cubic feet of water in an hour. The boilers are of peculiar construction, having the furnace inside of the boiler, and not separated by brick work—an economy in heating the water and protection against accidental fire. Steam was got up a few days since and the machinery put in motion, working admirably.

THE LATEST EDITION of Webster's Unabridged Dictionary received the labor of many eminent and leading men in the various special branches of science and literature, whose combined services were equivalent to the period of an average lifetime. Five years was devoted by a proficient Professor in Germany to etymology alone. The illustrative quotations are choice and numerous. To the practical man, without a classical or scientific education, it will not only prove immensely popular, but indispensable. It contains over 3,000 illustrations, 114,000 words, and 1,840 royal quarto pages. Examine this edition of "Webster" before you rest satisfied with the old—or any other dictionary.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, May 4, 1868.

Vice President Dr. James Blake in the Chair. About 30 members present.

NEW MEMBERS.

The following persons were elected members of the Academy: Dr. C. T. Deane, Joseph Paxson, Gen. J. J. Miller, A. Roman, Theodore Mudge, John B. Felton, Dr. J. Blumson, Thos. A. Barry, Dr. R. Beverly Cole, Calvin Brown, F. M. Pixley, H. L. Davis, Julius Bandmann, Thos. M. Cash, John Hucks, J. F. Lohse, J. W. Willard, Benj. A. Patten, Justin P. Moore, August Emory, A. Harpending.

ELECTION OF PRESIDENT.

The Chairman stated that the election of a President, *vice* Professor Whitney, resigned, was in order. Mr. Stearns nominated Dr. James Blake, and no other being made, the votes of the Academy were taken, with the following result: Dr. Blake 23; Dr. Gibbons 2; Mr. Bradley 1.

Dr. Blake having been declared elected, returned thanks to the Academy for the honor conferred upon him, promising to do all in his power for the interests of that body.

DONATIONS TO THE CABINET AND LIBRARY.

Dr. Gibbons, on behalf of Mr. C. A. Eastman, presented the cabinet with a fine specimen of the *hippocampus Major*, and a centipede preserved in spirit, both from Mexico. He also presented the library with a Japanese work, containing illustrations of various species of fish, on behalf of Mr. Joseph Tilden.

Dr. Cooper remarked that these Japanese illustrations were remarkably correct, considering that they were produced by a people who knew nothing of anatomy. So much was this the case, that a series of Japanese fishes had been described solely from these drawings.

A large piece of wax, found on the Klatop shore, about twenty miles south of the Columbia River, was donated to the cabinet by C. M. Scammond. Dr. Cooper said that there was nothing remarkable in the fact of wax being found there, as it undoubtedly was part of the cargo of a Japanese vessel that was wrecked in that locality several years ago. Amber was also found there, in small quantities, but that was a natural production.

DISTRIBUTION OF MOSSES AND SHELLS.

Dr. Bolander stated that Dr. Kellogg had lately found a moss at Point Lobos, which had been hitherto supposed to grow only in the Sierras.

Dr. Stearns stated that he had recently made a trip to Monterey, in company with Mr. Harford, in quest of shells, and they had found many species alive not found before; they also discovered some *nudibranchs*, and being unable to decide as to their species, had turned them over to Dr. Cooper, who has described most of the naked mollusks of this coast.

THE UTILIZATION OF AIR.

Mr. R. d'Heureuse, the patentee of the Air Method for Fermenting Wines, some account of which was given in a late number of the MINING AND SCIENTIFIC PRESS, read an interesting paper on "The proper use of air in reference to Industry and Medicine," a synopsis of which will be given in our next issue.

DECAY FROM OVER CULTIVATION.

Dr. Gibbons stated that there was now in this market a small red apple, which was very fair in its appearance, but the remarkable feature of which was that it began to rot at the core, with a dry, bitter rot. These apples came from an orchard in Alameda, where they hung side by side with grindstone apple. They were called by some, wine sap, but were not the genuine wine sap. None of the grindstone apples presented the same peculiarity; and of the smaller variety, not one in twenty was exempt from it. He thought that the germ of a fungus was perhaps introduced into the fruit while it was blossoming, and developed subsequently on the inner surface of the cells adjoining the seed. This was one method adopted by nature to put an end to cultivated varieties propagated by grafting. He had noticed several old species of fruit trees in the Atlantic States, die out in a similar way; and the same effect was observed often in high-bred cattle. Nor was the human family exempt from the operation of this law, as was shown in the case of several old races, which, being trained too high, exhibited a tendency to die out.

Considerable desultory discussion took place upon the subject, but the opinion was generally concurred in that the decay came from the presence of fungi.

PROPOSED ESTABLISHMENT OF REGULAR LECTURES.

Dr. Bolander suggested that the meeting might be made more interesting and profitable, if arrangements could be made for the delivery of short lectures of from thirty to forty minutes, at each meeting,—the subject of said lecture to be then open for general discussion by the meeting, in absence of any other less important or less interesting matter. Dr. Stout suggested that the meetings should be held every Monday evening, instead of on the first and second Monday evenings of each month. After considerable discussion, a committee, consisting of Drs. Cooper, Kellogg, Gibbons, and Messrs. Bolander and Bloomer, was appointed to draw up a plan for the institution of such lectures.

RESIGNATION OF MR. STEARNS.

Mr. Stearns stated that as he was compelled to leave the State next month, and should be absent a twelve-month, he was obliged to resign his position as Director of the Museum. He hoped that the Academy would progress in his absence, and assured them that he would do all he could for them abroad. On returning he proposed to put his hand to the plow again.

Dr. Stout gave notice of an amendment to the Constitution, altering the life membership from \$200 to \$100.

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SIXTH INDUSTRIAL EXHIBITION

—OF—

The Mechanics' Institute.

THE BOARD OF DIRECTORS OF THE MECHANICS' Institute hereby give notice that the Sixth Industrial Exhibition of that Association will be held some time in August next, in a building to be erected for the purpose, in Union Square, in this city. Every preparation will be made to accommodate exhibitors and visitors, with a view to make the Exhibition profitable, instructive and pleasant to all parties.

During the three years which have intervened since the holding of the last Exhibition in this city, the manufacturing, mechanical, scientific and useful, and ornamental arts have made unprecedented progress on this coast, and it is believed that the proposed Exhibition will exceed any other in value that has ever been held on the shores of the Pacific.

The plan of building to be erected, which has been adopted by the Institute, is believed will prove to be the best adapted both for display and convenience of the public, of any building ever erected in the State. The building will be perfectly water-tight, being covered with a shingle roof, so that no damage from the elements can be anticipated.

All parties who are interested in any of the branches of Manufactures, Mechanics, or the Arts and Sciences, are invited to exhibit in the proposed Exhibition, and to share in the publicity and consequent profit which always attends such enterprises. Suitable premiums will be offered, and the specific date of opening the Exhibition will be published at some future time.

By order of the Board of Directors. 19v16 HORACE D. BUNN, Cor. Sec'y.

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—AT—

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ing in stock, when shareholders and the
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articles of fuel. It is confidently believed
that a much needed reform will be secured
by this Association, to all, particularly to
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will accrue all the profits of the business.
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5th, with a capital of \$20,000, divided into
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nell Secretary and Treasurer. About the
tenth part of the capital stock is disposed
of, with fair prospects for an early distribu-
tion of all the shares. A share in this com-
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credit for thirty days to the amount, and a
dividend of the net earnings at the end of
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to be in full operation in a very short time.
Coöperation in business cannot but be ben-
eficial to all parties interested if ordinary
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warmest sympathy and heartiest coöpera-
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ALUMINUM BRONZE.—This alloy of cop-
per and aluminum is not manufactured by
combining these two metals directly to-
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of pig-iron containing aluminum. This is
slowly heated up to the melting point, and
the copper then added. The aluminum,
having a greater affinity for the copper than
with the former. After being stirred, the
whole is allowed to cool slowly, so as to
permit the aluminum and bronze, which is
denser than iron, to settle to the bottom of
the crucible. Silicium bronze may be made
in the same manner.

TANNING WITH CHESTNUT WOOD.—A tan-
ner in Lyons, France, finds that the tannin
obtained from the wood of the chestnut, in-
stead of the bark, makes leather of a pec-
uliar fineness, uniformity, and excellence
of color, and superior quality in all respects
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The fame of Muller's Brazilian pebble
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The carbon process is of English origin,
and consists of printing on a tissue of car-
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in a bath of bichromate of potash solution,
instead of on the silver paper formerly
used. It has long been the study of pho-
tographers to invent some process of print-
ing by which nitrate of silver could be dis-
pensed with. This was desirable, because
it is impossible to accurately reproduce the
finer details of the negative, and on account
of liability of the best silver print to fade
and discolor with time. The new carbon
prints now challenge competition with the
best silver positives. * * * The effect
of the finished picture is similar to that of
a porcelain plate cast in relief, through
which the light produces the soft shades of
a delicate mezzo-tint engraving. Placed
beside a carefully-finished silver print from
the same negative, the inferiority of the
latter is noticeable. The print is flat, ex-
pressionless and dead, while the carbon
picture is fairly plastic in effect, and the
head stands from the paper with a round-
ness that is truly remarkable. It is very
certain that no similar effect could be pro-
duced in silver. We welcome this discov-
ery as the great desideratum so long sought
by scientific photographers, and can only
wish that an American had discovered it.

GROUND on the Humboldt Bay and San
Francisco Railroad, at Sancelito, has been
broken.

RETURN OF THE SOUTH AMERICAN EXPEDITIONS.—The scientific expedition that started from William's College some seven or eight months ago has returned. The party traveled in two divisions. One section started from Guayaquil upon the western coast, crossed the Eastern Cordillera of the Andes, penetrated to the river Napo, and thence by canal to steam navigation on the Amazon. The other started from Caracas upon the coast of Venezuela, struck inland to the Orinoco, and down the Rio Negro to the Amazon, traveling a distance of 2,500 miles by canoe.

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You have brought the results of a profound analysis, and made them available, in a practical form.—*J. H. Brayton.*

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National Mineral Land Law, Instructions.
Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jun. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

New Mining Advertisements.

Hope Gravel Mining Company. Location of
Works and Property: Grass Valley, Nevada County,
California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of May, 1868, an assessment (No. 23) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 53 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Wednesday, the tenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 53 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. m9

I. X. L. Gold and Silver Mining Company.—Location
of Mine: Silver Mountain District, Alpine County,
Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth (4th) day of May, 1868, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirteenth (13th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs. San Francisco. m9

Whitman Gold and Silver Mining Company.
Location of Works: Indian Springs District, Lyon County,
Nevada.

Notice is hereby given, that the Annual Meeting of the Stockholders of the Whitman Gold and Silver Mining Company, will be held at the office of the Company, No. 10 second floor of Express Building, No. 402 Montgomery street, San Francisco, on TUESDAY, the second day of June, 1868, at two o'clock P. M., for the election of Trustees and the transaction of such other business as may be presented.

T. W. COLBURN, Secretary.
Office, room No. 10 second floor of No. 402 Montgomery street, San Francisco. m9

Mining Notices—Continued.

Black Ledge Gold and Silver Mining Company,
Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
C. H. Light	7	6 1/2	\$42 50
R. W. Heath	16	8	80 00
A. H. Greene	17	8	80 00
J. A. Donkhouse	210	1	10 00
Smith Gray	209	1	10 00
H. P. Cutter	212	1	10 00
E. R. Waterman	51	2	20 00
T. E. Lindenberg	58	10	100 00
Geo. F. Sharp	149	4	40 00
C. J. Bateman	194	81 3/16	\$152 62
J. N. Hancock	85	5	50 00
W. Neill	91	1	10 00
J. Camp	95	10	100 00
Joe White	97	15	150 00
G. L. Gray	98	10	100 00
J. B. Bidwell	111	4	40 00
E. G. Bidwell	129	4	40 00
E. G. Bidwell	141	9	90 00
Ezra Gregg	144	1	10 00
Ezra Gregg	145	100	1000 00
C. C. Gregg	146	12	120 00
J. W. Barker	211	1	10 00
J. N. Hancock	164	10	100 00
N. D. Bonestell	165	10	100 00
C. D. Bonestell	171	20	200 00
C. D. Bonestell	171	12	120 00
Mr. B. A. Add.	201	1075 1/16	\$198 38
A. A. Add.	203	987 1/2	\$987 50
D. H. Crowe	214	1	10 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1868, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. m2

Chilpaneca Mining Company—District of Ures,
Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-third day of March, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Fogg, E. G.	65	10	\$20 00
Mosheimer, Jos.	68	25	50 00
Mosheimer, Jos.	67	26	52 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-third day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at their salesroom, No. 310 Montgomery street, San Francisco, Cal., on Monday, the eleventh day of May, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN F. LOISE, Secretary.
Office, 318 California street, up stairs, San Francisco. m25

Chalk Mountain Blue Gravel Company.—Location
of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1868, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twelfth day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BIFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. m21

Office of the Folsom Street and Fort Point
Railroad and Tunnel Company.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of April, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Caleb T. Fay, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the twenty-sixth day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the eleventh day of June, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. m2

Joe Lane Gold and Silver Mining Company,
Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J. A. Drinkhouse	172	1	\$10 00
Asaph Gray	171	1	10 00
H. P. Cutter	174	10	100 00
T. E. Lindenberg	29	1	10 00
Geo. F. Sharp	27	4	40 00
H. P. Allen	25	21	210 00
H. P. Allen	14	50	500 00
D. R. Buell	61	50	500 00
E. R. Waterman	53	2	20 00
H. Light	161	6 1/2	62 50
Wm. Neill	33	10	100 00
J. W. Barker	173	1	10 00
Jas. Camp	98	10	100 00
Geo. F. Sharp	149	25	250 00
Mrs. B. A. Add.	159	29 11 1/16	296 88
D. H. Crowe	175	1	10 00
Jacob Bariz	169	12	120 00
A. A. Add.	176	159 1/16	750 62

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighth day of May, 1868, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. m2

Stockholders' Meeting.—Notice is hereby given, that a Meeting of the Stockholders of the Globe Gold and Silver Mining Company, Monitor Mining District, Alpine County, California, for the election of Trustees and the transaction of other business, will be held at their office, corner Union and Montgomery streets, San Francisco, Cal., on WEDNESDAY, the twentieth day of May, 1868, at 7 o'clock P. M. By order of the President.

J. WINCHESTER, President.
V. B. Post, Secretary. ap25

Honest Miner Gold and Silver Mining Company,
Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
H. H. Allen	310	80	\$800 00
Chas. Berdely	147	10	100 00
F. P. Barker	156	1	10 00
H. W. Bradley	155	1	10 00
Jacob Bariz	334	5	50 00
H. F. Cutter	349	1	10 00
Jas. Camp	238	10	100 00
J. A. Donkhouse	346	1	10 00
D. Linkspiel	48	4	40 00
D. Linkspiel	179	4	40 00
N. Dow	134	10	100 00
F. A. Dow	65	1	10 00
Asaph Gray	348	1	10 00
Chas. R. Gibbs	169	3	30 00
John W. Barker	161	1	10 00
S. M. Hills	184	1	10 00
John Hewston, Jr.	219	10	100 00
Chas. W. Brooks, Trustee	214	5	50 00
Chas. D. Kellum	172	40	400 00
C. P. Lander	42	6	60 00
Jas. Lyfthor	132	1	10 00
F. J. Lamb	156	5	50 00
Morrison	184	21	210 00
P. M. Mahon	171	5	50 00
Wm. Neill	211	1	10 00
W. L. Perkins	183	10	100 00
T. R. Lawton	203	2	20 00
A. A. Add.	354	1060	10600 00
S. Solomon	180	2	20 00
S. S. Hill	183	10	100 00
J. R. Williams	221	10	100 00
R. F. Ames	167	1	10 00
W. B. C. Barker	194	5	50 00
D. P. Warren	201	2	20 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighth day of May, 1868, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, No. 223 Clay street, San Francisco. m2

OLNEY & Co., Auctioneers and Real Estate Agents, attend promptly to all business entrusted to their care in San Francisco and Oakland. Mining and other corporations will find Col. Olney well posted and thorough in transacting sales of delinquent stock. Office, on Broadway, Oakland, and No. 318 Montgomery street, San Francisco. n610

Postage.—The postage on the MINING AND SCIENTIFIC PRESS to any portion of the United States is twenty cents per annum, or five cents per quarter, payable in advance at the Post Office delivering the paper. Postage free in the city and county. Foreign postage (with few exceptions) two cents per copy, prepaid. To Bremen and the German States (marked via Bremen and Hamburg line), three cents per copy, prepaid. Single copies to any address in the United States, two cents.

La Blanca Gold and Silver Mining Company,
District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-seventh day of March, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Alexander, Jacob	474	1	\$2 50
Bertz, Henry	536	24	60 00
Bertz, Henry	528	6	15 00
Barkhausen, L.	171	12	30 00
Becker, Nicolas	246, 222, 344, 466	15	37 50
Diedrich, Eliza	543	10	25 00
Elthm, Frank	431	3	7 50
Fajoy, W. H.	530	6	15 00
Fries, S. B.	383	6	15 00
Fisbel, Benj. H.	279, 364	6	15 00
Harrison, Peter	581	40	100 00
Hubert, Charles	32, 42, 485, 487	30	75 00
Huerter, Gustav	441, 443, 483, 524	25	62 50
Haus, Sol S.	258, 289	6	15 00
Holt, Henry	386	5	12 50
Levy, Louis	385	10	25 00
Laudis, C.	326, 382	7	17 50
Nicholsen, H.	418	10	25 00
Nicholsen, Isaac	576	5	12 50
Reich, Richard	113, 316	17	42 50
Rosenbaum, Valentin	525	5	12 50
Reith, Adolph	459	59	91 25
Walzer, Max	168, 362	8	20 00
Walzer, E. Trustee	167	750	750 00
Widlich, Gustav	437, 443	5	12 50
Zadig, Herman	483	2	5 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Naucore Dore & Co., No. 327 Montgomery street, San Francisco, on Saturday, the sixteenth day of May, 1868, at the hour of 12 o'clock, M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOS. GOLOMAN, Secretary.
Office, No. 312 Front street, San Francisco, Cal. may2

Lyon Mill and Mining Company, Kelsey Dis-
trict, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of April, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of June, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale.

J. M. BIFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. ap225

Notice.—The Annual Meeting of the Stockholders of the NEWTON COPPER MINING COMPANY, for the election of Trustees, and the transaction of other important business, will be held at the office of the Company, 305 Front street, San Francisco, on WEDNESDAY, the thirteenth day of May, 1868, at 3 o'clock P. M.

HORACE D. RANLETT, Secretary.
April 18, 1868. ap18

Nuestra Senora de Guadalupe Silver Mining
Company.—Location of Works: Tayoltita, San Dimas
District, Ouirago, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 31) levied on the twenty-seventh day of March, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
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Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and setters for themselves, at the

PACIFIC FOUNDRY,
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works.

San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3v13f SAN FRANCISCO.BLAKE'S PATENT
QUARTZ CRUSHER.

CAUTION!

The owners of the Patent for this valuable machine, in order to facilitate the protection of their rights against numerous infringers, procured, some time since, a reissue of the Patent, bearing date January 9th, 1866.

This Patent secures the exclusive right to employ in Stone-Breaking Machines Upright Convergent Jaws, actuated by a Revolving Shaft.

All persons who are violating the Patent by the unauthorized making, selling or using machines in which quartz or other material is crushed between upright convergent jaws, actuated by a revolving shaft, are hereby warned that they are appropriating the property of others, and that they will be held responsible in law and in damages.

Several infringing machines are made and offered for sale in this city, upon which Patents have been obtained. Manufacturers, purchasers and users, are notified that such Patents do not authorize the use of the original invention, and that such machines cannot be used without incurring liability for damages.

BLAKE & TYLER,
Agents for the Pacific Coast.

NOTICE TO MERCHANTS

—AND—

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength; less danger in working; as goods require no slinging or lashing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any tacking or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,
By JOSEPH MOORE, President.

2v15tf

JOSEPH MOORE.

HUNGERFORD'S
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Oss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

MORGAN HUNGERFORD.

A FULL ASSORTMENT OF
MOLDERS' TOOLS,

Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush st., a few doors above Montgomery, San Francisco.

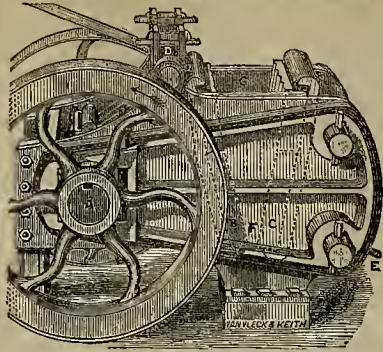
2v15 3m

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG is NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
8v13-1y Stove Store, No. 125 Clay street, below Davis.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, \$600

No. 2—Or 16-inch Crusher, capable of similarly putting through five to six tons per hour—price, \$850

No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour—price, \$1,200

EXPLANATION OF THE ABOVE CRUSHERS.

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, D, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Folsom county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Folsom County.

RAWHIDE RANCH, Folsom County, Sept. 28, 1866.

JAMES BRODIE, Esq., San Francisco—My Dear Sir: I feel it my pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to the care in need of a mine, for the rapid, cheaply and properly preparing quartz for the stamps. Yours truly,

R. P. JOHNSON,
Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desirous of procuring the same, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below.

A diagram, with explanation of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

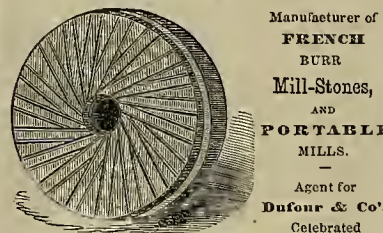
BRODIE'S PATENT WIND-ELAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or
CHARLES RADOLPH, DOBIE,
Express Building, 402 Montgomery street,
San Francisco.

12v13tf

C. F. TRAVIS.



DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory.

C. F. TRAVIS,
109 Mission street, San Francisco.

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 425 Broadway street, between Third and Fourth. Refers to Elsen Bros, Pioneer Mills; Martin Stoen, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer on the Coast.

6v16 3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel Files,
Etc., Shear, Spring, German, Plow, Bilster and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks,
Stone Cutters', Blacksmiths' and Horse Shoers' Tools,
319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco.
10v14qr

PACIFIC

FILE, REAPER AND MOWER SECTION
Manufactory.

No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.

First premium awarded at the State Fair, 1867.
2v15 3ms DURNING & KENNEY, Proprietors.

A FULL ASSORTMENT OF

TWISTED DRILLS,

At low prices, being sole Agents for the manufacturers, (the Manhattan Firearm Company.)

—ALSO—

Steam Gauges, a general assortment of
Hardware, Cutlery, and
MECHANICS' TOOLS,
By CHAS. OTTO & CO.,
2v15 3m 312 Bush street, San Francisco.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clero & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and Patterns of every description. Jig-Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regulated by the style required.

1v16 3m

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice.

7v16 6m

H. T. HOLMES.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

1v16tf

No. 625 Mission street, near Second.

Wright's Picks for Sale.

THIRTY-FIVE DOZEN PLATINUM PICKS, with or without stop and handles. The above Picks will be sold very low, as I wish to close them out. Also, a large stock of all other description of PICKS for sale at REDUCED PRICES. Give me a call at 231 Fremont street, San Francisco.

8v16 3m

JOHN WRIGHT.

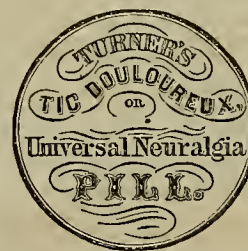
A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS,

Constantly on hand and for sale by

CHAS OTTO & CO.,
312 Bush street.

2v15 3m



A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
NERVOUS
DISEASES.

Its Effects are
Magical.

It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can ALWAYS be used with

PERFECT SAFETY.

It has long been in constant use by many of our most eminent physicians, who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	45 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by

TURNER & CO.,
Sole Proprietors,

9v16 6m

120 Fremont street, Boston, Mass.

To the Mining Public.

THE SUBSCRIBER, HAVING SERVED FOR THE LAST twenty years as Superintendent for various Companies, working mines of Gold, Copper, and Argentiferous Galena, offers his services to examine and report upon mines and mineral property. Reports accompanied by Plans, Sections and other Drawings. Also would be willing to take the management of any legitimate mining enterprise. If necessary, satisfactory reference given. Address:

14v16tf

H. H. SHELTON, Copperopolis, Cal.

Legitimate Photography

OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photographs, and a special premium for the best Cabinet Portraits, to SILAS SELLECK, 415 Montgomery street. Prices reduced to conform to Association rules. Patent secured.

2v15 3m

STOCK CERTIFICATES,
STOCK TRANSFER JOURNALS,

STOCK LEDGERS,

ASSESSMENT RECEIPTS,

And all other Blanks, Blank Books, etc., required by Mining and other Corporations, kept on hand or printed to order on short notice, at moderate prices, at the office of the Mining and Scientific Press.

THE OLD ENGINE AT CARRON.—The following item is from an account of a visit to the Carron Iron Works,—the birth-place of the Scotch iron trade, and for a long time the most extensive foundry in Great Britain. The account is from the Scotsman: "The site of the establishment was chosen on account of the abundant and convenient supply of water available. The blast was created, the tilt hammers worked, and the lathes and other machines driven, by water applied over a large number of wheels. As the premises were extended, the supply of water became inadequate, and somewhat anomalous means of overcoming this difficulty were devised. While James Watt was working out his improvements on the steam-engine, he entered into partnership with Dr. Roebuck, of the Carron Iron Works. During the time he was associated with Dr. Roebuck, he erected a large steam-engine at Carron, and this is the anomalous contrivance we have alluded to. Instead of the power of the engine being applied directly to the machinery, it was merely employed to pump back into a reservoir the water that had passed over the water-wheels, and so enable it to be used again and again. The engine was fitted with four pumps, which raised to a height of thirty-six feet, forty tons of water per minute. This old servant of the company has been sadly neglected. Though it has been allowed to remain in its original position, nothing has been done to prevent its falling into decay. The engine-room is crumbling into ruins, and the ironwork is black and furrowed by oxidation. As one of the earliest engines ever made, this piece of mechanism is an object of much interest; and it is to be regretted that the very little care necessary for its preservation was not taken. The engine, which is on the atmospheric principle, has a cylinder six feet in diameter, by eight feet in depth, and the beam is about thirty feet in length. The steam was supplied by three cast iron-boilers, two of which are globular in shape and measure about fifteen feet in diameter. About thirty years ago, this engine was superseded by one of improved design, applied directly to the machinery, and since then the use of water power has gradually died out."

NITRO-GLYCERINE AS A POISON.—As this substance is coming gradually into use, it is well that its effects when taken into the system,—as it is quite possible might accidentally happen,—should be generally known; so that all who are brought daily into contact with it may observe the proper precautions. Not being volatile, there is no danger that it might be accidentally inhaled; nor does it produce any effect when applied externally; yet it is said that workmen who handle it sometimes suffer from headache, owing to its absorption through the skin. But if swallowed, its effects are most violent. Mr. Schuchardt gives, in the Hanoverian Journal of Practical Medicine, the following account of his experiments with it:

In order to study its effect upon himself, the author took one drop at 10 A. M.; five minutes after, great dizziness came on, accompanied by weakness of sight, headache, with throbbing in the temples, weariness, sleepiness, strong aromatic taste in the mouth, a burning feeling in the throat, and pain in the region of the heart. An hour later, whilst incautiously endeavoring to take some nitro-glycerine out of a bottle by means of a tube, he received a considerable quantity in the throat. Although he spat it out at once, and rinsed out his mouth with alcohol, he felt the above described symptoms return, so that he was obliged to go to bed. He then fell into a half-senseless condition, which lasted some hours, and left behind it violent throbbing headache, with sensitiveness to light, giddiness, and trembling in the whole body. At first a feeling of warmth spread over the whole system, and the pulse increased in speed; later, a feeling of cold came over him; besides this, there was a burning sensation in the region of the heart, and nausea, but no vomiting. On the following day every symptom of poisoning had disappeared.

ANTIDOTE FOR STRYCHNIA.—Dr. J. Bartlett strongly recommends common salt for strychnia poisoning. He reports as many as twenty experiments on dogs, in which violent symptoms following large doses of strychnia, ceased after the use of emetics, the animal being first drenched with water holding in solution several handfuls of salt.

Chicago Medical Times.

SETTING TYPE BY ELECTRICITY.—A Washington correspondent of the *American Artisan* thus writes: I have before me a book containing 24,993 oms of solid matter, the whole of which was both "set" and "distributed" in six hours and thirty-nine minutes by machinery. But the wonder need not stop here. By means of one of these machines connected by telegraph with the Capitol, the reporter can set the type himself, the machine being in New York and he in the Capitol! It is simply a question of time and money—that's all.

TOTAL MILES OF TELEGRAPH.—The total length of telegraph lines throughout the world is upwards of 178,056 English miles, consisting, on the average, of a triple line of wires. The following is the length of lines in the various countries, according to the latest returns:

English Miles.	English Miles.
1866—Germany.....24,347	1865—Sweden.....3,207
1865—Russia.....22,992	1864—Belgium.....1,889
1864—France.....18,691	1863—Switzerland.....2,100
1864—Great Britain and Ireland.....16,297	1864—U. S. of America.....52,937
1865—Turkey.....8,065	1865—Canada.....3,030
1863—Italy.....8,216	Total.....167,974

To this must be added the two Atlantic cables, the total lengths of which are about 4,317 English miles (3,754 nautical miles), and the total length of the other submarine cables amounts to near 5,765 miles.

POISON OAK.—Prof. G. Dowell, in the *Galveston Medical Journal*, recommends in cases of poisoning by *Rhus Toxicodendron*, and other poisonous species of the *Rhus*, to bathe the parts with a solution of caustic potash, sufficiently strong to render the skin soapy. This "has never failed to cure it immediately," although he has used it in hundreds of cases, including himself. The potash is used in the proportion of ten grs. to the ounce of water, but may be increased in strength as needed.

Blanks, Blank Mining Books,

Constitution and By-Laws

— FOR —

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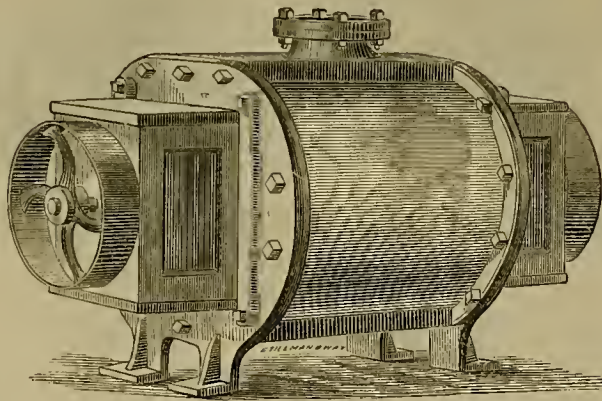
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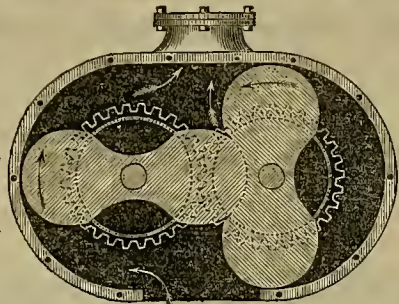
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A small needle, bent at the point and fixed in a holder, may be occasionally required to clear the minute hole through which the gas issues, and the regulating screw at the bottom turned a little back; but care must be taken not to force the screw too high, and it should never be used to extinguish the light—only turning the tap off, it will gradually go out.

When necessary to renew the cotton which is placed in the lower pipe to prevent the too rapid flow of the fluid, the lamp should be placed in a vise and the burner screwed off. The burnt cotton must then be withdrawn, and a fresh piece of stout cotton rag, one inch wide and four or five inches long, should be doubled over a piece of wire, and inserted into the pipe—the ends cut short off, the burner again screwed on with a little white lead, and the lamp is ready for use.

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SUBSCRIBERS who do not receive the *Mining and Scientific Press* in due time, are requested to inform the publishers.

THE LABOR EXCHANGE.—This institution is now under efficient headway, and appears to be full of business. Large numbers of mechanics and laborers are daily finding employment through its aid. Some idea of what it is doing may be learned from the fact that, between 2 o'clock p. m. on Thursday and the same hour on Friday, 115 applications for employment were registered, and 110 men found situations, between twenty and thirty of which were for mechanical employment. Mr. H. C. Bennett, has been elected the permanent secretary of the association, under whose management we have no doubt it will prove a most useful and efficient organization.

REDUCED RATES.—On and after June 3d, telegraphic messages will be sent for fifty cents from this city to Stockton or Sacramento, and for ninety cents to Virginia City. Cheap telegraphing rates are one of the necessities of the day.

MAINE INDUSTRY.—The Maine legislature at its late session, incorporated twenty-four companies to carry on various industrial enterprises, with an aggregate capital of over four and a quarter million of dollars.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment ourselves, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1888. 10v16 Sm

SAVE YOUR TEETH.—Mrs. Jessup & Beers, over Tucker's jewelry store, are now making a specialty of filling the fangs of dead teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty. They are also using Nitrous Oxide for the painless extraction of teeth, when so desired—the only absolutely safe anesthetic ever discovered. In breathing it, it acts as a gentle stimulant, without undue excitement, the sensation produced being truly delightful, the effect upon the lungs healthful, and in its results positively free from all danger. Prepared and administered daily at the Dental Rooms of Messrs. JESSUP & BEERS, corner Montgomery and Sutter streets, San Francisco. 10v16f

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GEORGETOWN, January 22, '87.
Messrs. Dewey & Co.—Sirs: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Washing Ores." It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf. Very truly yours,
M. A. WOODSIDE.

By MAIL.—The Mining and Scientific Press will be sent by mail to any part of the civilized world. In case of removal subscribers have only to inform us of the post office address of their old and new location, and the paper will be sent accordingly.

A. T. DEWEY. O. W. M. SMITH. W. B. EWER.

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To the practical mechanic, metallurgist, prospector, millman, mine holder or worker, it is worth many times its subscription price. Its files contain a record of the improvements in mining machinery, the progress and development of the mines, and all new methods and processes for working and

SAVING PRECIOUS METALS.

All progressive information, in fact, transpiring with the times—which cannot be obtained from books.

The MINING AND SCIENTIFIC PRESS is now in its SIXTEENTH VOLUME, and enjoys a large circulation. It received the following hearty endorsement of the California Miners' State Convention, held at Sacramento, January 17th, 1886:

RESOLVED, That we regard a mining paper or journal of great importance to the mining interests of California, and recommend the MINING AND SCIENTIFIC PRESS, of San Francisco, to the consideration and support of the miners of the Pacific coast.

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19v16-3m H. C. BENNETT, Secretary.

POSTMASTERS are requested to punctually inform us of the removal of subscribers of the Press from their locality, or of neglect to take the paper out of the office from any cause—when the subscriber omits that duty himself. It is not our intention to send this journal to any party longer than it is desired. If we inadvertently do so, subscribers and others will please inform us.

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SAN FRANCISCO, SATURDAY, MAY 16, 1868.

VOLUME XVI.
Number 20.

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Officers.
Stock Prices—Bid and Asked.
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San Francisco Mining Share-
holders' Directory.

A WHEEL WITHIN A WHEEL.—Our "occasional jokist" sends us the following. We wish it to be understood, however, that we do not, as a general thing, approve of this flippant style of treating serious subjects; but as our correspondent is a valued one, we give his note "just this once."

"EDS. PRESS:—The *Scientific American*, with an eye to the "main chance,"—which is of course very proper,—generously proposes to publish, for the benefit of those who wish to farther discuss the wheel question, a monthly periodical, entitled "THE WHEEL." All correspondents are to remit, with their communications, a sufficient amount of cash to pay for "setting up" their articles—say \$2.50,—or at that rate per page;—diagrams being at a separate charge,—say from one to three dollars. The aforesaid journal is of course, to make all it can, by the sale of the publication at twenty-five cents per copy;—which, considering that it costs nothing, being paid for by the contributors,—is likely to prove a very neat little speculation. The *Sci. Am.*'s "head is level," after all. Yours, JONES.

THE LABOR EXCHANGE continues to work most satisfactorily. The Secretary, Mr. H. C. Bennett, is constantly employed, and finds himself called upon to keep up a most voluminous correspondence with every part of the State. None but one of untiring energy and rapid, off-hand way of doing business and conducting correspondence, could get along with the arduous duties of such an office; especially in its incipency, when the routine of business has to be gradually wrought out, and the public schooled into its manner of working. Mr. Bennett is just the man for such a position—the right man in the right place.

During the week ending at 2 o'clock yesterday, 400 men have obtained employment through the aid of this association—of whom 172 were laborers; 44 farm hands; 16 teamsters; 25 lumbermen, and 143 other trades. The wages generally offered for country laborers is about \$30 per month and board; for harvest work, \$40 to \$50 and found; artisans from \$3 to \$4 per day—all in gold. Farming help for the interior is much sought for, and the supply of able-bodied men for such work is deficient.

The Hick's Engine.

This engine, which was invented by Mr. William Hicks, was first patented in the United States, February 21st, 1865, and a subsequent patent taken out May 22d, 1866. It has also been patented in nearly all the important countries of Europe and their dependencies. It was first exhibited on this coast by the proprietors of the Miners' Foundry, at the last State Fair in Sacra-

but not lettered, in the longitudinal opening between A and B. The cylinder on the right hand receives its steam from A; and the one on the left from B—each receiving its steam through its companion cylinder. Fig. 5 represents the pistons, connecting rods, crank shaft and connections; which, when put together, rest in the box shown in the center of fig. 2.

An important improvement has been

Fig. 2.

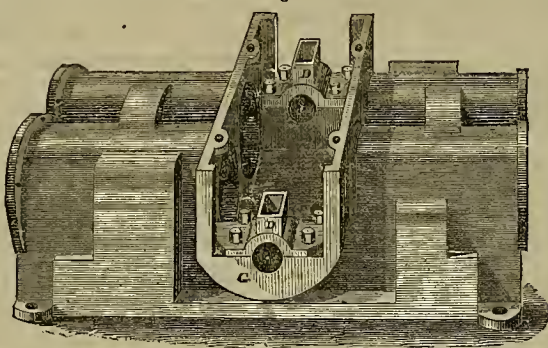


Fig. 3.

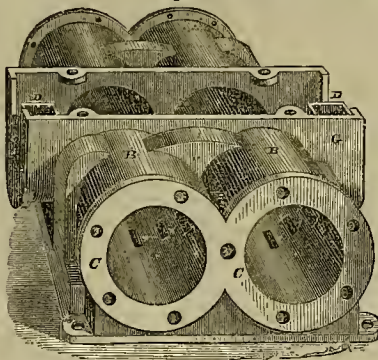


Fig. 4.

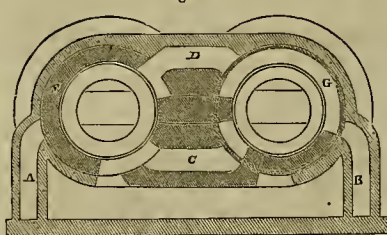
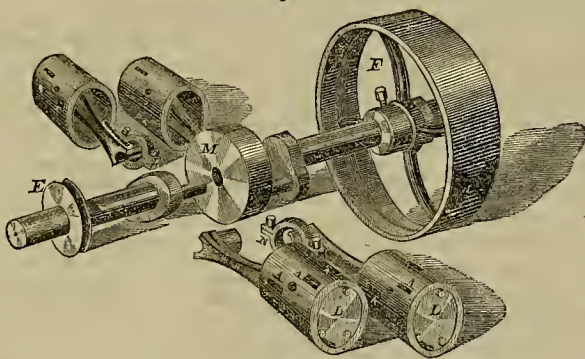


Fig. 5.



mento. We have several times spoken of the engine, but have not been able, until the present time, to give an illustrated description of its construction.

Referring to the figures annexed, fig. 2 represents a view of the main casting of the engine, with the box in the center and the bearings for the main shaft. Fig. 3 represents the same casting viewed at right angles with its position in fig. 2. Fig. 4 is a transverse section of the same through the centers of the cylinders; A and B are the supply pipes, the exhaust being seen,

introduced at the Miners' Foundry, in the construction of the crank shaft. Instead of making it with disks, as shown in fig. 5, they now forge it out from a single bar of iron, thereby producing a much stronger shaft than can possibly be made with disks, by the employment of the same weight of metal.

The Hick's engine thus consists of four cylinders, disposed in pairs, two at each end of the casting, their axis being parallel. The crank shaft lies across the casting in the center between the pairs of cylinders, and

at right angles to them, as shown in detail, in fig. 5. The pistons, fig. 5, which receive steam on one end only, are formed of two annular rings or cylinders in one casting, with divisions, so as to divide the space between the rings into steam passages. Each piston has three steam passages, two of which form part of the steam and exhaust pipe, as well as acting as slide valve for the cylinder alongside; the third steam passage receives the steam at the commencement of the stroke and up to the point at which it is cut off, through ports in the division between the two cylinders, from the piston alongside, and passes it out again at the end of the stroke. Around each cylinder, midway of the stroke, are a number of openings, A, A, fig. 3, two of which, in each cylinder, communicate externally with the steam and exhaust pipe; and the other openings, not shown, four in number, pass directly through from one cylinder to the other. These openings are so arranged that the openings into the steam passages in the pistons A, A, fig. 5, pass over them, while the engine is in motion, and the openings in the pistons so disposed, that communication is open to allow the steam to pass to and from the cylinders at the right time. The wrist pins for the connecting rods pass through the center of the pistons, at right angles to the axes of the same, and the connecting rods of opposite cylinders are secured together on the wrist pin of the crank shaft, the details of which are shown at N, fig. 5, so as to form but one bearing for both rods. The entire part of the main casting forms a box on which is secured a cover, inclosing the whole of the working parts.

BLAKE'S STONE BREAKER.—In our issue of March 28th, we gave a clipping from a New Haven paper, announcing the decision in the U. S. Circuit Court at Hartford, Conn., in the case of Eli W. Blake vs. Charles W. Stafford for infringement of patent on the above named machine. The New York *Wall Street Journal* gives the decision in full, as rendered by Judge Shipman; and also the decision in the case of Blake and Marsden vs. Archer, for a similar infringement, as rendered in London by Vice Chancellor Sir W. Page Wood, in November last. Both decisions are elaborate and conclusive; fully sustaining the validity of the Blake patent, and settling the question in reference to all cases where "upright convergent jaws actuated by a revolving shaft" are used for stone breaking or crushing. Blake Brothers announce their full determination to protect their patents in future, whatever the expense may be. Both decisions are on file at our Patent Agency.

ACTION OF NAPHTHALINE ON INSECTS.—M. Eugene Pelouze has found that naphthaline prevents plants from being attacked by insects. Its effect is not to kill either one or the other, but a very small quantity is sufficient to effectually drive the insects from the plant, and he believes that in this substance, florists and agriculturists will find a very serviceable friend.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

Formation, Distribution and Age of Igneous Rocks.

[Continued from page 300.]

The formation of the Quail Hill mine, lately described by W. A. Goodyear in the columns of the MINING AND SCIENTIFIC PRESS, seems to be possessed of considerable scientific interest, as it has a bearing upon the age of the more ancient auriferous deposits of the Sierra Nevada. I am informed by Mr. C. E. Treadwell, that some of the gold found in the Quail Hill mine is quite coarse, some pieces weighing \$10 and \$12. The gold from this mine has every appearance of being placer gold, such as is usually found in ravines, partially rounded by attrition. Mr. Treadwell also thinks the mass of rock composing the mine is unquestionably a stratified deposit. If this repository of the precious metal is, as it appears, really an ancient stratified placer, it dates the beginning of the eruptive era of the precious metals back to the period of the folding of the slates, while the floor of granite, upon which the system of stratified rocks rests, was yet plastic. When we consider the high dip which prevails among the schistose rocks of the Sierra, it must appear evident that the solid crust could have been, at most, but a few miles in thickness, during the folding of the slates. I had supposed, until recently, that all auriferous deposits rested unconformably upon the slates, and, consequently, was led to believe that some miles in thickness of the underlying granite had become solid at the opening of the eruptive era of the precious metals. The Quail Hill deposit conforms with the slates which dip at an angle of about 80°, and it must have been formed near the close of the extended period, during which the slates were tilted up edgewise.

Mr. Goodyear says, "the great mass of auriferous slates which forms the western flank of the Sierra Nevada, dip towards the granite axis of the chain, instead of from it, as would seem more natural. This condition of things is similar to that so often observed in the Alps, which is known as the 'fan structure,' and has so much perplexed geologists." When geologists recognize that the granite which shows upon the surface is *vein rock*, and that it was intruded, along anticlinal lines, in a plastic state, during the folding of the early-formed slates, they will be no longer perplexed to find the slates dipping towards the granite. I have observed many veins of granite among the slates; one in particular, situated in Butte County, which is miles in length, and varies from a few feet to two or three hundred yards in width. Where it crosses the North Honcut, it is not over twenty feet in width, and contains a "horse" of the country rock, which is of a slaty structure, and stands nearly vertical.

I am informed that Mr. Goodyear is a young man of good education and fair ability, as his papers show; and although he seems strongly inclined to follow his teachers, his head is not so filled with their false theories as to materially affect his eyesight. Keep on using your eyes, Mr. Goodyear; throw aside theories; take into the field with you only such facts as you know to be well ascertained, and continue your investigations,—for physical and chemical geology hardly take rank as science.

Inasmuch as the position which the advocates of the sedimentary origin of metal-bearing quartz veins find it necessary to assume, implies just what I contend for, viz., an eruptive era of the metals, we have only to consider if it is the more probable that the precious metals were erupted and intruded in the gangue in which they are found. There is but one compound of silicon with oxygen known to

chemists, viz., silica; and this is formed only by the ignition of silicon with oxygen. Quartz is soluble in water, it is true; but only after first being, or having been, fused with the alkalis. Sulphurets may be artificially produced by the ignition of the metals with sulphur, and the alloys of the precious metals which are also found in quartz, may be formed by fusion. These operations are neither delicate or intricate; but might have been performed in nature on the grandest scale, when the elements combined at an elevated temperature, and aggregated to form the solid earth. And we find in the intrusive veins, native metals, alloys, sulphurets, etc., which are the product of igneous fusion, mechanically mixed with and inclosed in solid quartz, which is itself the product of the ignition of its elements, in every conceivable proportion.

In regard to the rock matter forming the more ancient stratified auriferous deposits, we may apply the same mode of reasoning as that adopted by geologists for determining the origin of the stratified rocks. David Page, in his "Elements of Geology," says: "Gneiss, or the oldest system of the stratified rocks, differs little from true granite in its mineral composition, except in as far as the aggregation of simple minerals. In granite, the crystals of feldspar, quartz, mica, and hornblende, are entire and distinct; in gneiss, their angles and faces are broken and water-worn. In granite, there are no traces of laminated or stratified structure; in gneiss, this structure is evident, even where the strata are most indurated and contorted. All this attests the aqueous origin of gneiss—that it must have been deposited in water, and that it is composed of the disintegrated minerals of unstratified granite."

So we may say some of the ancient auriferous deposits differ little from true metal-bearing quartz, except in as far as regards the aggregation of the metals in strata. In quartz, the crystal of quartz, native metals, sulphurets, etc., are entire and distinct; in the ancient deposit their angles and faces are rounded and water-worn. In quartz there are no traces of laminated or stratified structure; in the old deposit this structure is evident. The miners sometimes find in the most ancient deposits, huge unaltered quartz boulders 20 feet or more across, and sometimes quartz boulders, tons in weight, and rich in gold. And moreover some of these deposits, though evidently formed by running water, are composed entirely of quartz gravel. All this attests the origin of the mineral and metallic matter composing the more ancient auriferous deposits, and that it is composed of the disintegrated mineral and metals of the unstratified quartz. And we may further conclude that the more ancient auriferous deposits of the Sierra Nevada, belong to and are a part of the old red sandstone system. It is no objection that they are mostly composed of loose gravel. They are unquestionably, fresh water deposits, and those flanking the summit have not been submerged since their deposition. The drainage of most of them is quite perfect, so that all the soluble mineral matter has been carried down to the sea. In some localities, however, where the drainage was not complete, there is an indurated conglomerate, termed "cement" by the miners, which is quite as solid as the original quartz. After once comprehending the plan of the distribution of igneous rocks, one cannot contemplate the more ancient auriferous deposits in place, and doubt an eruptive era of metalliferous quartz, or that it occurred during the old red sandstone era. F. A. HERRING.

ILLINOIS IRON MANUFACTURE.—A company has been organized in Chicago, with a capital of \$250,000, for the manufacture of pig iron from Lake Superior ore. The basis of the enterprise is the coal found at Brazil, Clay county, Indiana, on the line of the Terre Haute and Indianapolis Railroad. Until a recent date, it was not known that this coal would answer the purpose; but the matter has been definitely determined by the erection of three blast furnaces at Brazil, by Chicago parties, which have been in successful operation about three months. It is the intention of the company to erect immediately two blast furnaces, of the capacity of thirty tons each per day. The Chicago Times says: "While Chicago, and through Chicago, the whole northwest, are heavy consumers of iron, not a ton of pig iron has ever been manufactured in the city. It is certain that Lake Superior ore can be delivered in Chicago, via Escanaba, at least \$1 per ton less than either at Detroit or Cleveland. With so many advantages, there is no reason why Chicago should not become one of the first iron manufacturing cities in the country."

[Written for the Mining and Scientific Press.]
Letter from Cerro Gordo.

EDITORS MINING AND SCIENTIFIC PRESS: As much is being said about the mines in this vicinity, it should be understood that what is now needed at Cerro Gordo is not a rush of laboring men, but an influx of capital. It is hardly likely that very extensive operations will be carried on this summer, though matters are progressing favorably. Several men of means have visited these mines this spring, and I know of none who have gone away without either taking hold of something immediately, or expressing an intention to return soon.

Dr. Delavan, who has stuck to business through all the hardships of winter, intensified as they were by our wretched means communication with the world,—facetiously called "mail facilities,"—with exemplary perseverance, is still in the mines. As I once stated that his furnace was a failure, it gives me pleasure now to say that it is a success,—metallurgically at least,—under the management of a French gentleman, who has had much experience in smelting in Mexico, and who is putting up large works on his own account at present.

Several other parties are going to put up smelting works of considerable magnitude this season, so that there will probably be a good deal of activity towards fall. A large proportion of the ores could be amalgamated to great advantage, if carried to some place where water is abundant, as Owen's River for instance. In the mines, water is so scarce as to preclude all possibility of treating ore by its means, unless a much greater supply can be obtained, of which I fear there is little hope, notwithstanding many cite Virginia as an encouraging example; but I think there is great difference in the conditions. According to the estimates at present made, smelting will cost about \$80 per ton for custom work.

Among the interesting minerals of this region I find an aluminite of lead, in beautiful transparent prisms, which strike a fine blue with nitrate of cobalt. The name of the placer gold mines spoken of in your issue of 11th inst., is *Alabama*, not "*Albambra*." I am told the miners are making good wages there now, and a second water ditch will soon be completed, but it is not likely that the mines will prove extensive. About a dozen men are at work.

At Coso, about fifty miles southeast from here, there are seventeen arastras working on gold quartz, which pays, I am told, from \$50 per ton and upward. There are placer diggings also, but not much water to work them. The paying veins are very small. In the Kearsarge district the Silver Sprout Co. is putting up a roasting furnace with which to treat their ores, as I told them a year ago they would have to do.

The Kearsarge Co. works away at the mine. The arastra mill at Bend City is doing well, and on the whole the prospects of the valley are good. C. H. A.
Lone Pine, April 22d, 1868.

TREATMENT OF POOR COPPER ORES.—Mr. Wm. Henderson, of the St. Rolox Chemical Works, Glasgow, has taken out a patent for a process for working poor copper ores. His claim is for separating and mixing his ores that the proportion between the copper to be extracted and the sulphur combined with it, shall bear all times constant. In the preliminary calcination of the pyrites he makes such an admixture as shall leave him, in the burnt ore, from one to one and a half times as much sulphur as the metal to be extracted; thus, if the pyrites have two per cent. copper, it must have three per cent. sulphur, and so on for other percentages. In the further treatment of this prepared ore, from 10 to 20 per cent. of salt is mixed with it, and the mass is then calcined in closed calcining furnaces or muffles, which converts the whole of the copper into soluble and volatile chlorides. The former are washed out of the ore, and the latter caught in a condenser filled with coke. Mr. Henderson states that the main feature of his process, and the one which has established its practical success, is the regulation of the proportion of sulphur to that of the copper in the ore as 1½ to 1 as a maximum. In this proportion the mutual decomposition of the salt and sulphuretted copper takes place so rapidly and so completely that the calcination is effected in six hours, and can be conducted at a dull red heat.—*London Mining Journal*.

The Utilization of Air.

We give below a brief synopsis of the paper read by Mr. R. d'Heureuse, at the last meeting of the Academy of Sciences of this city, and to which brief reference was made in our issue of last week:

It is a matter of surprise that the action of air in industrial pursuits is so frequently lost sight of, and so imperfectly recognized even in cases where its beneficial action is fully recognized. It is only quite recently that the action of air, in extensive application to industrial pursuits, has been brought prominently before the world, and even now improvements in this direction are progressing very slowly.

We all remember the first application of the Bessemer process to manufacture of steel, and the objections and condemnations which followed its announcement. It is now universally acknowledged as the only rational mode of expelling the excess of carbon and other impurities from iron. This process expresses a principle which may be expressed as follows:

"Where, from certain substances such parts are to be eliminated, which more readily combine with the oxygen of the air than does the substance whose purification is required, it is only necessary to bring every particle of the whole substance into as intimate contact as possible with the oxygen of the air—other favorable conditions being insured."

The most ready and intimate contact to be obtained to this end, is by impelling the gas into the substance, which, if a solid, must of course be properly prepared for such operation by pulverization or fusion. Mr. d'H. would apply this principle to the roasting of ores. The horizontal revolving cylinder roaster, is one mode of this application.

The application of air to the preservation of organic substances was briefly alluded to. The principle is deserving of still more consideration, especially by scientific men. It is capable of large application to fluids, in cellular structure. Water soon becomes foul, unless it is freely subjected to oxygen by agitation in open air or otherwise, so that the organic substance which it contains may be readily oxidized. The principle herein involved is vitiated in the treatment of fluids subject to and under fermentation, when such fluids are deprived of free access of air. The admission of a limited quantity of air during fermentation, and that only to the surface, is all wrong, and gives but imperfect results; and leaves the fluids in a condition injurious to their stability. It is working against nature. We should either totally expel and exclude air, or we should give them an unlimited quantity.

Leibiz perfectly understood the action of air on fluids; but it never occurred to him that a better action could be had than a mere surface contact. Air in such cases should be impelled. The principle admits of a vast multitude of improvements through almost all our industrial pursuits. The march of progress in this direction is onward. Its use with our food and drink is but partially recognized as yet. Experiments by medical men in the direct introduction of air into the stomach or intestines, in certain diseases,—especially those of a putrifying nature,—will, no doubt, eventually develop eminently useful facts. The introduction of tempered or medicated air into the lungs has already been proven of high value in saving life. Other parts of the human system may be subjected to a similar treatment in modified forms.

The paper was referred to the publication committee.

UNDERGROUND TELEGRAPH.—The system of underground telegraph lines insulated with an asphalt compound, noticed so favorably in the Paris Exposition, has lately been tried with highly satisfactory results by the Royal Engineers in the yard of the Brompton Barracks at Chatham, England. This system, the invention of Mr. Donald Nicol, consists in laying down a series of rigid sections, or rods of asphalt containing the wires, in trenches in the earth, as lengths of iron gas pipe are laid. These sections are in about twelve feet lengths, the conducting wires protruding at the ends, and being alternately left straight and twisted into "cork-screws." In planting the lines, the straight ends of one section are pushed into the "cork-screw" of the next, and so on. The blow of a hammer upon the "cork-screws" ensures perfect contact, and when the junction is filled in with melted asphalt perfect insulation is also effected. In this way a dozen joints may be insulated at once. The cost of laying is \$100 per mile.—*N. Y. Stockholder*.

Mechanical.

AMERICAN IMPROVEMENT UPON THE BESSEMER PROCESS.—John F. Bennett, of Pittsburgh, Pa., has patented an improvement upon the pneumatic process, by which the sulphur and phosphorus are eliminated from the iron while it is yet in the converter; whereas their removal ordinarily requires a subsequent and distinct operation. The peculiarity of the process consists in the employment of carbonic acid gas. After the decarbonization is nearly completed by the blast of atmospheric air in the usual manner, a blast of carbonic acid gas is substituted for it, for a moment, and this is followed by the air blast again for a few seconds. He thus explains the operation:

"The blast of atmospheric air being continued through the molten iron until nearly all trace of carbon has disappeared, on the introduction of the carbonic acid gas a chemical union is formed between the two equivalents of oxygen and the sulphur present in the iron, forming sulphurous acid, which passes off as gas, depositing the carbon thus set free, which may be expressed thus: $C O_2 + S = S O_2 + C$. A similar result takes place in respect to phosphorus present as an impurity in the iron; the oxygen of the carbonic acid combines with the phosphorus, evolving acid gases of phosphorus, and depositing carbon, thus, $2 C O_2 + P = P O_4 + 2 C$, and carbon is deposited. This deposit of free carbon may be left in the iron, if preferred, in the manufacture of steel, or it may be burned out after the sulphur and phosphorus are removed, by a repetition of the atmospheric blast for a few seconds, as before stated. The oxygen of the carbonic acid gas will also combine with the iron, forming ferrous acid, thus, $C O_2 + F = 2 F O + C$, the formation of the protoxide of iron setting free and depositing the carbon."

The plan is described in full in the *Scientific American*.

STEAM HAMMERS.—The following points are from *The Engineer*: Steam hammers usually fail by the breaking of the hammer-head, the piston-rod, or the piston itself. So long as the blow is delivered directly, the hammer-head seldom breaks; but in those hammers with large faces, forging masses of considerable superficial area, the blow is often delivered to the right or left of the center of the anvil, and a twisting strain is caused which results in the fracture of the hammer face or slide-block. It is not easy to suggest a remedy. The best plan seems to be the use of ribbing, the ribs being disposed on the slide block in such a way that the cross strains may be resisted, as by a cantilever girder; and we need hardly point out the importance of distributing the weight of the head as much as possible.

The piston-rod appears to give way solely as the result of molecular deterioration. The fracture is invariably crystalline, and the metal brittle. It is certain that a perfectly fibrous tough bar of iron may be converted into a crystalline brittle bar by a few months' or even weeks' use, as the piston-rod of a steam hammer. In fact, it is impossible to get any rod to stand when the connections of the piston and the hammer head to it are rigid and direct. A cushion of hard wood between the slide-block and the piston-rod, or between the latter and the piston, is therefore used.

Pistons give way because their own momentum tends to carry them down after the rod has been brought to rest; the rod, in fact, is driven through them. The remedy consists not in increasing their weight, but in reducing it as far as possible, and thus imparting a certain amount of elasticity.

OIL-TESTER.—The new oil-tester of Ingram and Stappers is said to be rapidly superseding all others, being based, not on specific gravity, like most of them, but upon what is plainly the true principle, viz., friction. According to this test that oil is best, which will allow the greatest number of revolutions in a shaft, with the least increase of temperature in the bearings.

NEW ZEALAND IRON-SAND.—Messrs. Greener and Ellis, of Darlington,—says the *London Mining Journal*,—have patented the application of this sand to the manufacture of a good fettling, which has the further advantage of improving the quality of the iron made in the furnace in which it is used. The mode of using it is as follows: "It is thrown on the bottom of the heating or mill furnace to the depth of two or three inches; a dry bottom is thus formed of material that does not act injuriously upon the iron, and is used in lieu of the sand or cinder ordinarily employed. The furnace is charged and the heat applied in the manner usual in working reverberatory furnaces. A hollow or well may be made in the throat or flue of the furnace, commencing as far in the throat as possible, and extending into the neck. The well should be capable of holding the quantity of melted ore from the material thrown on the bottom of the furnace, as well as the cinder from the heated iron for one or two heats, for it is found that in some cases the longer the substance employed is exposed to heat the better it will suit the purpose which it is intended to effect. The molten mass may be kept in the well for one or two hours, then tapped, or it may be allowed to run continuously in the same manner as it is now run from sand bottoms; it may run into a small iron wagon or other suitable receptacle, and be allowed to cool previous to being used. By this method all the rich cinder from the iron, which is now mixed with melted silica or other impurities in the heating furnace, will be preserved and mixed with the melted ore which runs from the bottom; the mixture forming a pure and valuable "fettling."

MILL PICKS.—Isaac B. Hymor gives the following directions for the making of mill picks, as the result of long experience: In the first place, get double refined cast steel made expressly for mill picks. Be careful in drawing out the pick not to heat the steel higher than a cherry red. Use an anvil and hammer with smooth faces. When finishing the pick do not strike it on the edge, but hammer the pick on the flat side, striking light and often, until the steel is quite dark, letting the blows fall so as to close the pores of the steel. If the last blows strike the edge of the steel, the pick will fly and "spall" off. When a dozen picks are ready to temper, get two gallons of rain water, from which the chill should be taken if in winter, by dipping a hot iron in it; add two pounds of salt, which dissolve, and your bath is complete. Heat your picks gradually from the center, and let the heat run to the point, and when it is a dark cherry red, dip the point of the pick vertically into the bath and hold it still, not moving it about to find a cool place. When the heat has left the part immersed, take it out and cool the balance of the pick in ordinary water used in the shop. This process should be repeated on the other end of the pick. When taken out of the tempering bath the pick will look silvery white. The use of the salt is to clean the scale from the steel and make it tough. With the edge made by this process the pick will cut clean, clear, and fine, such a cut as millers need for "cracking."

The whole secret is in the beating and hammering. If not hammered enough the steel will spall off, and if heated too hot it will crumble.—*Scientific American*.

PENDULUM ENGINE.—A Milward's patent oscillator engine was exhibited at a recent meeting of the Polytechnic Association. This engine was of two-horse power and weighed 195 pounds. The cylinder was four inches in diameter and with four-inch stroke. Instead of being suspended on trunnions, as is usual in oscillator engines, it was hung by an extension at the top of the cylinder and moved like a pendulum at each revolution of the fly-wheel. The cylinder being supported on knife edges of tempered steel it is exempt from any great amount of friction or wear at that point. The steam chest is placed on the upper end of the cylinder, and a long port conducts the steam to the under side of the piston. By means of an eccentric attached to the end of the crank of the fly-wheel shaft, motion is so given to the slide-valve that a lap and lead is obtained. Much discussion followed the exhibition of this engine. Some persons declared the term oscillator to be a misnomer, as it was properly a pendulum engine. The valve motion embracing lap and lead was declared new in this form of engine, and the absence of trunnions, which are generally heated by the steam in a manner detrimental, was an improvement. The pivot or knife edges on which the cylinder was suspended were declared good by some, while others doubted their real utility.

Scientific Miscellany.

Electric Piles in Sea Water.

We alluded last week to the researches of M. Emile Duchemin, who has been for some years experimenting in this direction. This gentleman substituted a charcoal cylinder for the copper, in the pile, with a plate of zinc suspended within; the whole being connected by a wooden cross-piece, and buoyed in a sea-basin by cork floats. Sparks could be produced, and an electrical bell was rung for two months without cessation, until the arrangement was accidentally destroyed. M. Duchemin was a few months ago summoned by the French Government to Cherbourg, to assist the Commission now occupied in experimentation upon the subject. The *Engineer* says:

"M. Duchemin has succeeded in convincing the French Government that the destructive action of sea water on metals may be made to produce electrical currents for useful purposes, and experiments are now being carried on to test the subject at the cost of the Marine Department. An experiment has been made before the President of the Marine Council of Works, with three elements—each about the size of a man's hat,—plunged in sea water, at Paris, and sufficient electricity was produced to keep a Ruhmkorff coil of 16 in. in action, and produce sparks of two-fifths of an inch in length. At Cherbourg, the currents of seven elements plunged in the sea, after having traversed more than a hundred miles of copper wire, made a needle deviate eight degrees.

The Cherbourg commission entered upon another kind of experiment to ascertain whether these marine piles would not protect iron from oxidation. When an iron plate, of which the surface has been cleaned, was placed in connection with the positive pole, it soon became completely oxidized; but it remained unaffected when attached to the negative pole. Seven elements of 16 in. in circumference sufficed to protect an iron plate having a superficies of several square yards, for an entire year; and at the end of that period the elements themselves were in good working order. The experiments made, tend to show that the zinc employed in his marine piles is capable of preserving from oxidation a surface of iron equal to eighteen times its own; but as the chemical effect depends on the number of pairs, M. Duchemin believes that a much higher result still is to be obtained,—the commission having at present employed but a very small number of elements.

How (asks M. Duchemin) is the different action of the two poles on iron to be explained? The oxygen obtained by electrical action on water, possesses energetic principles for oxidizing metals; the hydrogen produced in like manner possesses the contrary power, which, however, is not evinced by hydrogen prepared in the usual manner. A current of ordinary hydrogen passes through a weak solution of perchloride of iron containing a small quantity of ferrocyanide of potassium, without producing any effect; while a current of hydrogen produced from sea water, produces a deposit of Prussian blue."

M. Duchemin says that to protect the plates of iron-clads in harbor from rust, it is only necessary to insure communication between every part of the armor and the negative pole of a powerful pile placed in the basin. He proposes also to effect the cleaning of ships' bottoms, by connecting one pole of a Ruhmkorff coil with the iron plating, and the other with the sea,—which causes the mollusks to quit their hold.

GALLIC AND TANNIC ACID.—Löwe has found that gallic acid in solution is converted into tannic acid under the oxidizing influence of nitrate of silver. The oxidation is more complete if a salt of gallic acid is employed. The transformation of tannin into gallic acid has never been satisfactorily accounted for. Some have attributed it to the action of the atmosphere, others to the preëxistence of a soluble ferment. M. Van Tieghem's memoir to the French Academy of Sciences describes experiments which prove both views untenable. He takes the ground that tannin undergoes metamorphosis by the development of a species of fungus in the solution. The atmospheric gases alone effect no change, but the atmosphere carries to the solution spores which require oxygen for their germination.

GALVANIC DEPOSITION OF IRON.—Dr Varrentrapp, a German chemist, has come to the conclusion that there are no reasons why deposits of almost any thickness of metal in cohesive coats may not be obtained from solutions of iron by means of the galvanic current with as great facility as from those of copper, with proper care in regard to certain points. "From a watery solution of iron in which a plate of metallic iron—serving as, and connected with the copper cylinder of a simple Daniell element,—and the plate to receive the deposit, connected with the zinc cylinder,—are immersed, a coating, though thin, will be obtained; but it will remain so, and usually there will very soon set in a strong evolution of gas. In order to avoid this, it is sufficient to insert in the current close to the iron plate a spiral of iron wire, thus enlarging the surface of this metal as compared to that of the one which is to receive the coating; and upon this change the process will go on for days in perfect regularity. The iron coating has the tendency of forming warty aggregations near the edges; it is exceedingly brittle, and of a hardness resembling non-hardened steel under the file. After passing the fire, however, it becomes soft and flexible, and may be rolled into a narrow cylinder.

Metallic types and blocks are readily coated in this manner,—as much so as with deposits of copper; they may be easily separated by having a previous coating of silver, which has been allowed to become yellow in an atmosphere of sulphureted hydrogen,—but which must not be too heavy, since in that case it would cause the iron coating to become loose and reflexed—as soon as it acquires about the thickness of paper."

The above is condensed from *Dingler's Journal*.

CHEMICAL ACTION OF LIGHT.—Professor Roscoe, of Manchester, exhibits the different degrees in which red and blue media transmit the chemical rays, in the following manner: He fills a thin glass bulb with a mixture of hydrogen and chlorine gases, produced by the decomposition of hydrochloric acid by means of the voltaic current; and the room being darkened, places this bulb in a lantern having one side of red, and another of blue glass. A flash of light rich in chemical rays, is produced in front of the lantern by igniting a mixture of nitric oxide and bisulphide of carbon. If this light is received only upon the red glass,—the blue being covered,—no effect is produced upon the bulb within,—the glass absorbing the chemical rays; but if the red side is covered, allowing the blue glass to transmit the rays, there is a sudden union of the gases in the bulb, and an explosion is the result.

POTASSIUM AND SODIUM.—M. Eugene Peligot has found that, contrary to the general belief, sodium is rare in the vegetable kingdom. He found no trace of the salts of this metal, except in a few plants of the class *Chenopodiaceæ*. He considers this fact due to an indifference on the part of plants to chloride of sodium, on account of the difficulty with which that compound enters into new combinations. Even marine plants, although living in a medium in which the soda salts predominate largely over those of potash, contain more of the latter than of the former. To those who ask how it is possible that so many chemists could have been wrong in mentioning soda in their analyses of vegetable ashes, M. Peligot replies, that it is probable that finding evidence of the presence of another base besides potash, they have assumed it to be soda, without sufficient examination. According to him, it is generally magnesia.

PHOTOGRAPHIC BATH.—The permanganate of potash seems to have the property of so modifying old photographic baths,—that they are completely cured of "fogging." Mr. J. R. Johnson says that a few drops of a 20-grain solution of the pure article is to be added to the bath. It is thereby changed in color to purple, and then turbid brown; but on filtration becomes perfectly clear.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand, New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

PATENTS RECENTLY ISSUED.

76,461.—IMPROVED ORE CRUSHER AND GRINDER.—Seymour Hughes, San Francisco, Cal.:

I claim an ore crusher, having the spiral inclined planes B, B, together with the stamps U, and dies E, the whole constructed and operating substantially as and for the purpose described.

2. In a circular crusher and grinder, I claim the inclined planes, consisting of the reversible grinding plate *b*, and the adjusting plates *a, a*, substantially as and for the purposes described.

This invention relates to a new mode of constructing quartz mills. Mr. Hughes constructs his mill so that the stamps themselves are carried around on a circular base, the floor of which consists of a series of inclined planes, each having a die at its base. The stamps are raised by being moved up the planes, the blow being produced by the fall of the stamp from the top of one plane to the foot of the next succeeding one, where it is received upon a die, as in the ordinary battery. Screens are placed around the outer circumference of the apparatus, through which the pulverized ore passes. This invention was fully described, with illustration, in our issue of Feb. 15th, 1868.

76,587.—GUN LOCK.—Salmon Belden and John F. Crabtree, Visalia, Cal.

I claim 1. The lever F, having a short arm connected with the tumbler by a link, and a long arm, to be held by the trigger when at full cock, and released when the trigger is drawn for discharge, substantially as described.

2. The safety-catch, consisting of the lever n, spring p, and lever r, together with the notch o, shoulder u, and the pin v, the whole combined and operating substantially as and for the purpose described.

76,721.—IMPROVEMENT IN SHINGLE MACHINES.—J. P. W. Davis, Point Arena, Cal.:

I claim the combination and arrangement of the clamps H, H, for holding the shingle, the curved pivoted knives I, I, and the wedge b, for graduating the distance between the edges of the same for tapering the shingles substantially as described.

2. The combination and arrangement of the rod K, and lever M, for releasing and delivering the finished shingles, substantially as described.

3. The double delivery-trough L, divided by the vibrating diagram g, in combination with the cam S, arms T and V, and pin d, for operating the same substantially as described.

4. The bar or rod i, in combination with the vibrating-diaphragm g, for reversing every alternate shingle on its way to the packing-box, substantially as described.

5. The sliding packing-box, having movable partitions, in combination with the inclines m, m, levers n and r, latch t, and spring z, for operating the same, substantially as described.

This invention relates to that class of mechanical contrivances known as "Shingle machines," and has for its object the construction of a machine which shall be portable, and which may be operated either by hand or by other motive power. This machine rives the blocks which are fed to it, joints and shaves the shingles, and finally piles them ready for binding or tying. To accomplish this, the blocks of proper length being placed on the carriage, on one end, it is moved forward by a cam on the shaft, operating in a rack on the carriage. This cam moves the carriage and blocks forward, just the thickness of one shingle, when the riving and jointing knife splits it off and rives the edge at the same time, so that the shingles in one bunch will all be of the same width. After being split off, the shingle is seized by two clamps, which draw it up between the shaving knives, these knives being drawn closer together as the shingle passes up, so as to taper and give it the desired shape. After leaving the knives, the shingle is released from the clamps, and at the same moment pushed by a lever into a trough. The first shingle will pass down the incline point first, and be deposited in

the receiving-box, with the thick end at one side, and the thin end in the center. By means of a cam, a diaphragm or partition in the trough is then lowered so that the next shingle will pass down another incline above the first, and be turned over during its passage, so that its thick end will be laid against the opposite side of the box from the first one, and its thin end toward the center, and so on, alternately, till the box is full, when it will be moved along for binding, and another box brought into its place, to receive shingles. By appropriate mechanism, the shavings are all carried away from the machine as fast as made.

RECENT INVENTIONS.

A NOVEL LIFE-BOAT, built on an entirely new and ingenious plan, is now on exhibition on Brannan, between Fifth and Sixth streets. In the construction of this boat, an iron keel is first laid, rising from which, on either side, is a double wall of basket or wick work, made of Manila rope wound around galvanized iron wire. This net-work is made to conform to the proper shape of a boat, with a space of eighteen inches between the two walls. This space is filled up with any light material, mixed with *papier-mache*, rendered water-proof; the material employed in this case is stalks of the banana plant. Firm water-proof sides or walls are thus built up, held in place by the inner and outer nettings, both of which are thoroughly saturated or pitched with coal tar, with a final covering of *papier-mache*, laid on smooth, over the whole. The sides of the boat are properly strengthened with iron bands, and an ordinary wooden deck. Permanent ballast is secured in the bottom. It is claimed that a boat so built will be as light as a cork, impervious to injury from collisions with rocks or any other substance; while she can neither be sunk or burned. It is thought she will ride in safety the roughest sea. This boat, which has been built as an experiment, and will be launched on the 3d of June, is 42 feet long by 14 feet beam, and will carry from 30 to 40 tons. The inventor, a Frenchman, has filed a caveat for this principle of boat construction, and in due time will apply for a patent.

CROFT'S FIRE LADDER ESCAPE.—The neat and elegant model of a Fire Ladder Escape, invented by Mr. Thomas T. Croft, of this city, and which has already been described in these columns, has been placed on exhibition at Chief Danrell's office, in New York, where it has attracted considerable attention and elicited much commendation. The invention was patented through the Agency connected with this office.

CLANY'S SAFETY LAMP, for the prevention of explosions in mining shafts or other places liable to fire-damp or foul air, may be obtained at the California Wire Works, of Mr. H. T. Graves, No. 412 Clay street. This new safety lamp is considered an important improvement upon Sir Humphrey Davy's patent, and consists in a case or guard of glass, surrounding the burner, through which the rays of light are readily transmitted, instead of through wire gauze, as in the original,—the gauze being retained only on the upper part of the lamp, for the transmission of the gases. It is really "a light to the feet and a lamp for the path" of the miner in his underground wanderings. To prevent the inveterate smoker from lighting his pipe,—the too frequent and almost the only source of danger,—the inventor has wisely provided his lamp with lock and key, so that accidents are scarcely possible.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

GARDEN CITY GOLD M. Co.—May 13th. Capital stock, \$200,000; 4,000 shares, \$50 each. Trustees: Albert Cramer, Albert S. Evans and O. D. Squire.

PACIFIC UNASSASSABLE MINING STOCK Co.—May 13th. Capital stock, \$1,000,000; 100,000 shares, \$10 each. Trustees: J. W. McKenzie, W. Monahan and J. H. Hammond.

THE TALLEST CHIMNEY IN THE WORLD.

At the Port Dundas Works, Glasgow, is a chimney which is 468 feet in height from the foundation. Fourteen feet of this is below the surface, leaving 454 feet for the height above the ground. *Engineering* says this is the tallest chimney in existence. Its outside diameter at the level of the ground is 32 feet; at the top, 12 feet 8 inches. It is seven bricks thick at the bottom, and one and a half at the top. Its section is circular throughout.

During the progress of the work of building this chimney, and while the mortar was still somewhat soft, a violent wind-storm caused a deflection from the vertical position, which at the top amounted to 7 feet 9 inches. As this would of course endanger the structure, it was determined to resort to the expedient of sawing the mortar joints on the windward side, in order to bring the column back to the perpendicular. This was done from the inside, by removing part of the brick work, half way round, making a groove about 14 inches wide. A narrow hole for the entrance of the saw was then chiselled through at a horizontal mortar joint. This was done at each end of the groove, and the two saws worked in opposite directions towards each other. Ordinary carpenter's hand-saws were used. The brick work which had been removed was replaced as the sawing proceeded. Twelve such cuts were made, at different distances, the highest 128 feet from the top, and the lowest 41 feet from the ground. By that time, the chimney was in a perfectly perpendicular position; and from that time to the present moment,—nine years,—has remained in perfect condition.

PHENIC ACID.—Phenic, or carbolic acid, noticed of late as a powerful disinfectant, has been found a most valuable remedy in certain diseases in sheep. Dr. Calvert, in a recent lecture, says the cure of scab is effected by a single dip in water containing a small quantity of the acid. For foot-rot, a mixture is made of the acid and a plaster, which is made to adhere to the animal's foot for two or three days, preventing the contact of the air. But if the flock be numerous, a shallow tray made of stone, is filled with the medicated mixture, and the sheep made to pass through it. Cattle cease to be annoyed with flies if washed with a very weak solution of this acid.

THE NINTH WONDER OF THE WORLD.—

The Stockton *Independent* has the following: "A Mr. Crandall, residing in Washington, writes to Mr. Gall, of this city, under date of April 12th, 1868, stating that he is interested in a machine, invented by a Mr. Duvall, of Washington, and designed for mining in the beds of rivers. It is so constructed that it makes no difference about the depth of the water. It will take up and wash dirt or gravel from the bottom of a stream, at the rate of from eight to twelve cubic inches per minute."

The writer enters into a calculation to show what this wonderful machine will do,—and winds up by concluding that it will wash out in ten hours, \$972,000! He adds: "We have already been offered and refused \$150,000 for the right for the State of California." The *Independent* says "Whew!" We "concur." That hundred-and-fifty-thousand-dollar man was probably not a Californian.

WOMEN'S COÖPERATIVE UNION, organized for the benefit of the sewing women of this city, is in a flourishing condition. They are now making to order about 300 shirts, and upwards of 500 garments for ladies' and childrens' wear per month. The store is at No. 39 Second street, Wehl's Block.

TEA CULTURE.—Efforts are being made, under the auspices of the English Government, to establish the tea culture in the island of Jamaica.

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This is a new publication, and in style and treatment of this important subject, is original, simple, plain and comprehensive. The author, Prof. LAYRES (a meritorious Teacher of good standing in California, and a sound thinker and reasoner.) In his preface says: "The method pursued by the Author in developing the subject of Composition, is both the synthetical and analytical. The former is necessary to teach the theory, the latter the practice of the art; and as these are both indispensable to the scholar, so are also the two methods, as the sequel will show."

The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—*John Smith.*

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—*J. G. Pelton.*

After as careful and thorough perusal of the same as it was in my power to give, I come to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best of its kind. I know of but few men in any profession who would not be benefited by its careful study.—*Wm. H. Hall.*

I regard it as one of the best treatises upon these important branches—perhaps the only one obtainable possessing equal advantages—conciseness, and simplicity of style, as well as of its kind. I know of but few men in any profession who would not be benefited by its careful study.—*Wm. H. Hall.*

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text books.—*James Dennon.*

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—*Martin Kellogg.*

I recommend it to all those who wish to obtain a book that will give them definite ideas on the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, simple, and forcible manner.—*Caroline L. Atwood.*

I regard the book about to be published as far superior to any work extant upon that subject.—*Wm. S. Hunt, A. M.*

I believe the work will be a valuable and much needed addition to our school text-books.—*Herman Perry.*

You have brought the results of a profound analysis, and made them available, in a practical form.—*J. H. Brayton.*

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and advocates at the forum.—*John Curry.*

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. . . . Exactly calculated to interest. . . . It will soon become a necessity in every lawyer's library.—*Charles A. Tuttle.*

Its clearness and comprehensiveness make it easy.—*G. W. Boies.*

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end. He seeks to teach the student not only how to take sentences apart, but how to put them together. His system is not merely of reality. We know of no work in which can be obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Layres has done the cause of popular education good service.—*S. F. Bulletin.*

This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—*Alta California.*

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—*S. F. Times.*

Prof. Layres plunges at once "in medias res." He seizes a sentence (which is the unit in composition, whether written or spoken) holds it up before you; tears it to pieces before your eyes—or rather, we should say, neatly and skillfully dissects it—displays one by one its several parts; makes you thoroughly acquainted with each, in its entirety; and then shows you how to put them together again. A series of such experiments, increasing in complexity gradually, till you do not feel the difficulty, and the thing is done; you are master of the subject.—*Mining and Scientific Press.*

Its design is to show that ideas can be so arranged as to increase their power; in short, to teach the mechanism of composition, eloquence and oratory. A desideratum long felt is supplied.—*S. F. Examiner.*

This is an age in which the occasions are rapidly multiplying, when educated men, and women, too, are called upon to express their views in writing, either for public or private inspection and criticism.—*Stockton Independent.*

The most eminent educators in California give it their hearty approval, and we concur.—*Marysville Appeal.*

Not only one of the best of its kind, but what is still better, one of the briefest. It contains 166 pages.—*Virginia Enterprise.*

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Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, May 2d: The Morning Star mine looks better than ever before. The ore is easier broken down than in the upper levels, and can be mined to better advantage.

The lateral tunnel of the M. C. M. Co. is now in 223 ft., 63 ft. having been made during the month of April.

The Imperial tunnel is in softer rock and the contractor is making wages again.

L. L. Lewis, Supt. of the American Co. has repaired the flume, and set the pump going to drain the works.

The Pittsburg have cut another lode, and have, we understand, a three-foot vein of ore.

Chronicle, May 2d: The Morning Star mine has a large body of rich black ore similar to that taken out two years ago and shipped to England. We learn that the Trustees will shortly visit the mine with a view to the erection of smelting works.

Mount Bullion is one of the liveliest camps in our county. The Tunnel Co. are pushing ahead. The tunnel is now in a little over 200 ft.

Amador County.

Ledger, May 9th: The Tubbs quartz mill, one mile north of town, got up steam on Monday, and is now crushing rock. This mine will be vigorously worked from this time on.

During the past week, richer quartz than ever has been found in the south lead of the Coney & Bigelow mine. The specimen shown us is full of free gold, while the sulphurets sparkled all over it.

The Maxwell Mining Co. has been organized and incorporated to work the first south extension of the celebrated Eureka mine at Sutter Creek. Some very rich ore was taken from a shaft on the lode years ago.

Calaveras County.

San Andreas Register, May 9th: Messrs. Snyder & Mester paid a visit the other day to the Fair Play quartz mine, for the purpose of starting work thereon. They have commenced the construction of a water-power quartz mill.

Inyo County.

Territorial Enterprise, May 12th: Mr. Delavan writes from the Cerro Gordo mines, under date of May 1st, that all kinds of mining operations were being prosecuted with renewed energy, and ore was being forwarded to San Francisco at a fair profit. The whole cost of delivering ore in San Francisco is set down at \$100 per ton. Such ores as are thus shipped will produce from \$300 to \$800 per ton. A wagon road from the mines to the valley, a distance of seven or eight miles, is spoken of as something very much needed.

Kern County.

Havilah Courier, May 2d: T. J. Williams, foreman of Col. Rand's mine, informs us that the pumping and hoisting works are now on the way from San Francisco.

At Keysville, considerable work is being done in ground sluicing, and a great deal of gold taken out. In Ticknor Basin, and Kelsoe Valley, placer mines are being worked to great advantage, and we are informed by a gentleman from Tehachapi, that more work will be done in the mines there this season than for several years past, there being an abundance of water to last the entire season.

In the Burning Moscow, a run of five days to test the rock, yielded a little over \$25 a ton.

Havilah correspondence of Visalia Delta, May 6th: The Delphi mill is running a portion of the time, but owing to the surface water, the mine is very wet, and rock is not quarried as fast as the mill (10 stamps) can crush it. This mine has the richest rock of any in the county. The New York Clear Creek G. M. Co., will soon begin a tunnel to open their mine to a greater depth. They have a good 10-stamp mill.

The Howe Bros. are not doing anything as yet. The Joe Walker Co. have been continuously at work and doing well. Their lode is from 5 to 12 ft. thick at the depth of 300 ft.

Sagoland district promises to take the lead in this county, in the number of mills and the richness of its mines. Three or four mills will be erected this season.

In Kelso district, work on the Piute lode will be resumed shortly. They are down with a double shaft 225 ft.

Los Angeles County.

The *News* of May 5th has an editorial upon the mines of Southern California, and the neglect which they have suffered for

the want of capital to develop them, although in reality fully equal to those in the more northern portions of the State. We quote: But a short distance to the north of this city is a district rich in placer mines, called San Feliciano and the Casteca mines. Here, in the winter, hundreds of our native Californians labor with success, realizing from \$3 to \$5 per day. It only needs some enterprising capitalist to construct a ditch, with reservoirs, to lead the waters of the San Francisco Cañon into those placers, and employment all the year round could be given to thousands, who would make large wages. East of the San Francisco Cañon, some 15 miles, and about 60 miles from Los Angeles, are the quartz and copper mines of Soledad, which bid fair this summer to prove the richest mines of California. The mines of gold are extensive, and discoveries are made daily of new ones. Arastras are now in operation, and a mill will be erected by Messrs. Searles & Yates, to run by water power, which cannot fail to prove a fortune to the lucky owners. These veins are wide, well defined, and gold can be seen glittering in nearly every piece taken from the lodes. These mines are sure to attract a large population this summer. It has the finest climate in the world. Game is to be found in abundance, and the water is unequalled.

Nevada County.

Transcript, May 7th: Every company in the vicinity of Moore's and Woolsey's Flats is washing, and not an idle man can be found in the streets during the day.

Since March 1st, 26 companies have located 50,920 ft. in the county. This is up to May 1st.

Same of 8th: The Banner Mining Co. is now setting up one of Henry's rock breakers and also in adding 10 stamps to the mill, which will give them 30.

Mr. Mattingly is opening a ledge near the Banner which gives evidence of being rich. He is running a tunnel for the purpose of striking the ledge at the depth of 40 feet. Rock from the ledge near the surface paid \$11 per ton.

A crushing of 15 loads of quartz from the Inkermann mine has just been cleaned up at the Gold Hill mill. The yield was \$51.10 to the ton.

The Constitution Co. have located 3,000 ft., commencing at Mooney Flat ravine and running back into the hill.

The new sulphuret reduction works at Canada Hill are expected to be ready for work in 10 days. It is estimated that their establishment cost at least \$60,000.

Same of 9th: The Kentucky Blue Gravel Mining Co. is engaged in prospecting for the blue lead at Snow Point. They are down 150 ft. and expect to reach the lead by going 125 ft. further. They are sinking through gravel at the rate of four ft. in 24 hours.

10th: The Osceola Mining Co., at Rough & Ready, are about running a prospect tunnel, on contract, for the purpose of opening the mine.

Gilham, McSorley & McAuley have laid water pipes and are about opening a new set of hydraulic claims at Randolph Flat. Barker & Rex, and several other companies, are also engaged in hydraulic mining.

12th: Thos. Allen, who is mining near Rock Creek, is working 12 men, and making from \$12 to \$15 per day to the hand.

W. C. Ralston has sold 1-40th interest in the Eureka mine, Grass Valley, to Andrew J. Pope, for \$20,000. At this rate the value of the mine would be \$800,000. It was purchased several years ago from Fricot for \$450,000.

Gazette, May 5th: The Whartenby and Leavitt claims at the head of Broad street, on Kelsey Ravine, are being worked by hydraulic power.

Same, 6th: The Chalk Mountain Co. are taking out considerable gold at their claims near the Cascades. Last Thursday one of the workmen found a chipa weighing four ozs., and one pan of the gravel yielded \$44. The gravel is washed daily, and on Saturday the yield was 8½ ozs. The company purpose erecting a cement mill. The Red Diamond Co. near by, are obtaining prospects of \$1 to \$2 a pan on the bedrock, but their tunnel has not yet reached their best ground.

Grass Valley *National*, May 4th: On the Diamond ledge, Osborne Hill, the Fowler Bros. have succeeded in striking a ledge, a foot in thickness, from which some rock has been taken, that shows well in sulphurets and gold.

5th: We were shown some rich specimen rock from the fourth level in the New York Hill mine, this morning. The ledge will average in thickness from eight to twelve inches.

Yesterday the clean up of a crushing from the Union Hill mine was brought into town. There were 106 tons of rock crushed

which yielded 35¼ ozs. of gold which at \$17 per oz., gives \$6,018 to four young men, who have been about 30 days in taking it out.

7th: We are informed that the Hope Gravel Co. have about completed their hoisting works, which they purchased of the old Alta Co. and removed to their ground. By the middle of next week a 12-inch pump will be started, with sufficient power to raise water from the mine in immense volumes. It will take but a very short time to relieve the mine of water.

Placer County.

Dutch Flat Enquirer, May 9th: Since the blue lead discovery in this place was made public, the miners have been busy in relocating their claims, and considerable activity prevails. Nearly every one who has a claim, or can procure an interest in one near the line of the supposed gravel deposit, is making preparation to prospect. Our town and surroundings have an air of business life similar to that experienced years ago.

Plumas County.

Quincy National, May 2d: The Crescent mills, under the new administration, are to commence crushing on Monday next. Peard had a lease of the Crescent—which expired when Mr. Marcuse took possession—and from his last run of seventeen days, cleaned up 400 ounces. The mill will also crush rock from the Imperial ledge.

Messrs. Miller & Ellis, on Taylor Creek, near this Valley, discovered a quartz lode last week, which promises to be valuable. The ledge is large, and prospects at the rate of "75 colors" to the pan. Mr. Miller's placer claim on this creek is paying an average of \$7.50 a day to the hand.

Messrs. Bachellor & Viets, of Cherokee, are running a new tunnel to their ledge. Their rock pays more to the ton than any ledge in the county. Their little mill in Dixie Cañon has been idle for some time, on account of bad roads between mine and mill, but they are already to start up again.

At Round Valley, Judkin & Kellogg's mill, which has been idle for some time, commenced crushing on Thursday of last week.

Letter from North Fork: The miners will be backward this year in getting into their river claims. The Brewsters are having a fine run of water on Red Rock. They have 10 hands ground sluicing, and expect to take out "slathers" of gold. None of the miners on Dutch Hill or Barker Hill have commenced hauling dirt this spring, but most of them expect to begin in two or three weeks.

The *Union* of same date says: On Rich Gulch, Gambin is piping at the head of the gulch with plenty of water. Capt. Corser is also uncovering considerable bed rock. Mardon & Co. on Missouri Flat, in the old Pike claims, are now running a cut. Schieser & Co. are piping on Dingbat. The Hallsted Co. on Rush Creek Flat, have plenty of water and are working their claims to advantage. Hyde & Ward are at work on 12-Mile Bar; they are making wages.

The Wescott quartz mill in Indian Valley, will commence crushing quartz again in a few days.

San Bernardino County.

Guardian, May 2d: From a gentleman just down from the mines, we learn that there are 40 miners at work in the placer diggings in Holcomb Valley, and that they are realizing from \$2 to \$6 a day. Water is in abundance for all mining purposes.

Sierra County.

Messenger, May 9th: While Charley Gager, John Cunningham, and Dick Christopher were ground sluicing in their claims in Slug Cañon, a few days since, they struck a seam of rich quartz in the bed rock, gold being visible in considerable quantities. The bed rock is very soft and prospects well when panned out.

The Union claim at Gibsonville is said to be paying splendidly. For one week's work it divided \$150 to the share in profits. The Gold Bluff Co. are now using the Giant Powder altogether. Other companies will soon abandon the old powder and work altogether with the new.

Camptoville letter: The road has been moved from the mining ground; two companies have been piping away at the hill for some time past. There has been no cleaning up yet, but the hill is known to be rich.

Tulare County.

Visalia Delta, May 6th: At White River, Mr. Carter will start his mill in a few days, on first rate ore. This company have developed their mines sufficiently to discover an inexhaustible supply of \$25 rock. A. J. Maltby has made a clean up of 246 ozs. of bullion, from a run of 50 tons of ore from the Eclipse mine, being about \$70 per ton.

Tuolumne County.

Sonora Democrat, May 9th: In the Garner mine, at Oak Flat, a well defined vein from three to four feet thick, and of very rich rock, had been struck on the north side of the river. The ledge on both sides looks well. The mill-site is well chosen. The mill will be finished in a few weeks.

ARIZONA.

Miner, April 25th: Messrs. Frink and Barton arrived in Prescott from Wickenburg at five o'clock yesterday morning. Mr. Phelps had arrived at Wickenburg with 40 tons of machinery. A brother of the inventor of Hendy's concentrator, accompanied him. A rich silver ledge has been discovered about 20 miles east of Wickenburg, also a good ledge.

The Chase lode is looking well. The mill will be ready to run by May 1st. A tunnel has been started. Shaft 102 ft. in depth.

Letter to same from Williams' Fork: "As for the mines, the Springfield Co. has suspended work. Mr. Flower, the Supt., says he would not go up and down the creek for all the mines on it. Capt. Ashley, of the Planet, and the Great Central Co., under your humble servant, are shipping good ore. We both got a steamboat load off last month, and expect another boat on every day to take off another load. I intend to work all summer if the Indians don't steal my teams and animals."

COLORADO.

Denver News, April 22d: A private letter from Lake county says the boys in Granite District are finding lodes nearly every week. Morgan's men, on the Yankee Blade, are getting out nice quartz. Things look promising. The Moyer boys have found a lode on the patch diggings, which beats all heretofore. At Idaho, and on the bars above and below, every man is at work.

Letter from Lincoln City: The Grant Mining and Fluming Co. has already placed upon their ground a large amount of lumber and other materials, preparatory to an early campaign. The Badger has a flume over 1,000 ft. in length. The Flushing Co. has been running five years in succession. The Lincoln City Co. placed their flume three years ago, and have more than realized their expectations. Notwithstanding the severity of the winter, they have worked incessantly. The Upper Fluming Co. expects to begin early this spring. They have a large amount of timber on the ground.

Georgetown Miner, April 23d: The Brown shaft last week was completed to the tunnel. Work on the New Boston shaft has been suspended until the tunnel reaches the vein, which will probably be in a week or 10 days.

Garrott, Martine & Co's reduction works, between the 7th of August last, and 1st of the present month, have run about 70 days, and treated 166 tons and 1,300 lbs. of ore, from 35 different lodes. The amount produced was \$18,124.90, an average yield of \$108.79 coin value per ton in silver.

Herald, April 22d: The Montana mill has been started up on custom ore. We have heard that a 40-stamp mill is to be put up on North Clear Creek. The parties are on the way from the East with the machinery. Mr. L. C. Miley is fitting up the Holbrook 8-stamp water mill, and will soon start it up on custom ore. The little 8 stamp mill of Uncle John Beverly, Nevada Gulch, has been put in order for running. Five tons of galena ore from the Washington lode, gave two bricks worth \$451. The Ophir Co's mill, Nevada Gulch, has been shut down for repairs. John Boylan yesterday started up the Enterprise mill. This mill, since having been shut down, has been put in A No. 1 order. It is being run on custom ore. Last week, Messrs. Moores & Myers run two cords of Bates ore through the Wilson mill, from which they retorted 20 ozs. gold.

Three miners who are working near the mouth of Chicago Creek took out 13 ozs. 6 pwt. 4 grs., working 5½ days last week. They are now working in the old bed of the creek, and have to pack their pay dirt to the water.

DACOTAH.

The *Idaho World* gives part of a letter dated South Pass City, April 10th, as follows: I think the mines here are very limited in extent, and not very good pay at that. Pease and Charley have got in; they found nothing while prospecting. Charley was gone two months, and returned yesterday. We will begin work on our ground next week, and will soon know what it will pay. We got pretty fair prospects. I thought there would be diggings struck outside, but the chances are slim now; nor do I think so much of the quartz here as I did a while back. You had better not advise any one to come to this country—it is

a hilk, or nearly that. We hope to make a little money this spring, so as to get away.

IDAHO.

The *World* April 29th, says this is the dull season ever known. The snow fall, on which the supply of water depends, has been very small. Only a few of the miners are likely to be able to work their claims through the ordinary mining season. Towards Centerville, in Baboon Gulch, just below the Summit, a dozen hydraulics are in active play, and up the gulches ground sluicing is industriously prosecuted. From the Summit on to near Grimes' Creek there is little doing, but thence on into Centerville, and all about there the glad sight of busy mining is presented. From Centerville to Wolf Creek there is very little mining going on. The creek operations of the Smith Bros. are suspended until the water is lower. On the hills in front of Placer-ville, where over 10 ft. of ground will yield a hundred dollars, mining has ceased, save in one or two claims. But in the run of from eight to twelve days, which was given to the claim owners, they derived very rich products; in one instance, a clear profit of \$2,300. At Granite Creek, the hydraulics of Ellis, Devine, Leary & Co., are in constant play, and Granite is, in proportion to its size, the liveliest camp in the Basin. Mr. J. M. Claxson, at the large 25-stamp mill at Pioneer ledge, has lately struck a new vein in that mine, the ore from which the mill is now crushing day and night.

A few days ago the largest lump of gold ever found in Moro's Creek, was taken out by John Noonan, from his claim at More-town. It weighed just \$7.

Deadwood correspondence of same: There are now about 100 miners here, and I think it is going to be a pretty good camp this season. Out of about 200 claims, 150 have been prospected and show well—that is, they will pay \$10 to the hand. Judge Gray, Romer and Whiting have good ground; Bill Newton has one of the best claims here—a hill claim, in which the dirt pays from five to ten cents to the pan from the surface to the bedrock, about four ft. This claim is the only hill diggings yet struck and prospected, but I believe claims on other hills will be found which will pay equally well. We want about 50 or 60 practical miners here yet, and their labor will be well rewarded, for I think that in six months this will be another Idaho City. J. Madden, Jackson, McIntosh, Duffy and myself have opened two of our gulch claims. We shall have plenty of water in three or four days.

MONTANA.

Virginia Post, April 25th: Bates & Trevitt's mill is now running on full time, the owners apparently well satisfied with the returns. Several parties have commenced mining in Alder Gulch, but the cold weather interferes somewhat with their operations. All are complaining of the scarcity of water. Hundreds of miners were busy at work yesterday, for the first time this season, in consequence of the water being let in the big ditch, and great was the rejoicing thereat. Some claims in Boomerang Gulch are reported to be paying from \$10 to \$12 per day to the hand, though the majority much less. Taylor & Thompson are putting an engine on their claim for hoisting purposes. A third hydraulic has been started on McLellan Gulch. The owners state they have sufficient ground they have prospected and know to be good, to keep these three hydraulics running for 25 years, at an average pay of \$8 a day to the hand. Mining in Tucker Gulch and vicinity is progressing as well as could be expected, with the amount of water obtainable. We learn that as high as \$10 to \$15 to the hand has been got out by the slow process of "rocking." S. F. Molitor & Bro. cast yesterday a gold bar of the coin value of \$3,587 64, from a six days' run of J. C. Ricker's mill, on second class rock from the I. X. L. Co's claim, on the Union lode. Mr. Kicker is down on the incline 300 feet, with a fine, wide vein. At French Bar, mining operations are reported as at a standstill for want of water. Dry Gulch opened up very promisingly early in the season, and some large runs were made on the left hand fork, but water has recently failed and little can be done at present. Two new discoveries of quartz have been made in Brown Gulch district. One ledge has been named the Gould & Curry; the other the Shepherd & Christenot, after the discoverers. The specimens of the rock shown to us are very fine, and the crevice of the former is seventeen feet. The owners are getting out rock, which will be crushed at Christenot's arrastra. An arrastra is being put up on the Brannon lode at Mill Creek. The ledge has a shaft 80 ft deep upon it, and a crevice of four ft. The owners have out 100 tons of fine rock.

Diamond City correspondence of same: During a 10 hours' run last night, McGregor, Thomas & Co. cleaned up from their claim in Confederate Gulch, over \$1,800 in clean, coarse gold. This amount was taken out by five drifters, from a space 20 ft. long and 3 1/4 ft. wide. The entire amount of dirt from which this gold was washed, did not exceed 70 cubic ft.

Phillipsburg do. April 15th: The Stuart mill started on the 26th of March, crushing Dashaway rock, and cleaned up with good results. It is now crushing rock from the Van Timmoos lode, which is expected to far exceed anything ever worked in the mill. After that they will crush 16 tons of ore from the Ophir lode, prospecting equally good. Work is progressing on several leads—the Camanche in five different places. The Pride of Montana has a tunnel in 80 ft., with good indications. Shafts are being sunk on nearly all the ledges in the camp.

Radersburg, do. April 3th: I understand that from \$20 to \$25 per day to the hand is the average in Hope and Charity Gulches, and Bay Horse Bar, while still greater clean-ups are obtained from various sags and hills where ground-sluicing is practicable. A majority of the miners are holding over until the upper ditch is finished.

Bannack, do. April 16th: There are now ten men mining in this camp to one any previous year since 1863. There are in all eight ditches bringing water into this camp, and they will be used this season to their utmost capacity. N. E. Wood, Snp. of the New Jersey G. & S. M. Co., is still running his Bullock's Crusher, working only one pan. He is crushing quartz from the Cherokee, and is cleaning up weekly from \$1,000 to \$2,000. Messrs. Derier and Falls are putting up a furnace on the plan of Mr. Esler's, to smelt the silver ores of the Blue Wing district. Messrs. Robinson and Wright are taking out tons upon tons of rich ore from the Silver Rose. Mr. Falls has also out a large amount of rich ore from one of the Blue Wing Leads.

The Montana Mineral Land & Mining Co's 24-stamp mill is running on quartz from the discovery of the Dakota lead.

NEVADA.

Esmeralda.

Territorial Enterprise, May 5th: We yesterday saw a gold brick from the Wilson mine, Pine Grove, which weighed 1,099.15 ounces, and is worth \$20,346.02, being the most valuable bar ever molded in this State.

An Aurora telegram dated May 9th, is as follows: "A rich discovery has been made at Brodie, within a few days. Dan. Olstein has discovered a quartz ledge on High Peak, near the Empire Co's works. Joe. Hutchinson, one of the owners, brought some of the rock in town to-day, and it is certainly rich—principally gold. It has created a great quartz excitement amongst the mining community. The owners think it will average \$1,000 per ton."

Humboldt.

Register, May 9th: The Essex mill, at Dnn Glen, is in complete order and doing fine work. One hundred tons of ore from the Monroe mine has just been put through the battery and is now being worked in the pans. About 100 tons more of this ore is ready for the mill, and will be converted into silver bricks immediately.

Palmer.

The Silver Bend Reporter's Hiko, correspondent says, April 20th: The first silver brick of the Palmeragat Valley S. M. Co., located at this place, has just been retorted, weighing about 1,100 ounces, and 867. fine. You should see this mill to know what perfection of machinery is. From that part where the ore is dumped to the dryer, the battery, the furnace, the pans, and the retorting room, everything gravitates.

Some gentlemen representing a Chicago company are prospecting the Webster lode, and intend commencing the erection of a "20-stamper" as soon as they strike the vein. Another party are experimenting on our ores with a view of smelting; so far, they have met with encouraging success. Great energy is being displayed by the Alameda Co. They are taking out more ore now, daily—averaging about \$140—than a 10-stamper will require. The mine they are developing is on the List lode.

Reese River.

Silver Bend Reporter, May 2d: The Enterprise Co. Gold Mountain district, about 45 miles south of Silver Peak, have made arrangements with J. E. Clayton, an experienced mining engineer, to erect a small mill in the district for the purpose of testing the value of the "Stato Line" ledge. The ledge is possibly south of the State line, and consequently in California. It is from 10 to 12 ft. wide and rich in gold. Six hundred sixty-six pounds were worked

in this place (Belmont) and yielded \$131 per ton. The mill will have a battery of two newly invented steam stamps. The Enterprise Co. thus far are the sole occupants of the district, having located everything yet discovered, though doubtless there are many other ledges there. There is plenty of timber for fuel close at hand, and timber suitable for lumber at a distance of 15 or 20 miles. Water abounds in numerous springs a few miles from the mines, but wells will have to be dug to ensure a convenient supply.

A lot of chloride ore taken from near the surface of the El Dorado South ledge was taken to Austin and reduced and yielded \$557 to the ton. The ore was taken from an immense chimney. A number of tons are already extracted and ready for reduction.

The Belmont Co's mill has shut down a few days for repairs.

Mr. White, Superintendent of the Northumberland Co., will enter into arrangements immediately for machinery for a 10-stamp mill, and will erect it before winter sets in; he will also put an additional force of men upon the ledge. The tunnel running for the ledge, which it will strike a considerable distance from the surface, is now quite near to it.

Messrs. Gillett and Clark of the Wyoming ledge have disposed of 300 ft. of their location for \$10,000. Work will go on with vigor by these same gentlemen, who are negotiating a lease of the 10-stamp mill in Hot Creek Cañon. Several other veins in that region are to be worked.

At the Combination mill, Mr. J. M. Dawley, General Superintendent, has made some salutary changes about the establishment, and the reverberatory furnaces are now unsurpassed by any in the country, and work splendidly, as does everything in connection with the mill. The bullion now coming from the mill is much finer than at first—exceeding .800. About 70 men are at present employed at the mill in the several departments, and everything moves like clockwork.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial Enterprise, May 5th: The Occidental Co. are about to sink a shaft in air mine to the water level. They already have an incline down upon their lowest level to the depth of 100 ft., and this will be carried down until water is struck.

Same of 6th: The Sutro mine, so long neglected, is about to be awakened from sleep. A party interested will soon leave for San Francisco to raise money and procure machinery to work the vein. We were yesterday shown an assay from the croppings of \$49.30 per ton in silver.

7th: We were yesterday shown some exceedingly rich specimens of silver ore from a lead just discovered in the vicinity of Pyramid Lake. Parties in this city were yesterday making preparations to go out and examine into the truth of the reported discovery. If the ore shown us actually came from a newly discovered lead, and a lead of fair size for working, it is one of the most important discoveries that has been made in a long time.

8th: The Justice-Independent Co. started up with their new machinery on the 6th inst. Every part of the machinery works to perfection. They now have two good engines, pumps, reels, etc., all in good working order, with power sufficient to sink and drain their mine to a depth of 1,000 ft.

9th: A very rich strike was made evening before last in the claim of the Cole Co., west of the city and back of the Comstock. The strike was made in the second level, 300 feet below the surface, and reached through a tunnel 600 ft. in length. The ore is a black sulphuret, and is astonishingly rich in gold as well as silver. We were yesterday shown assays of two samples as follows: First sample, at the rate of 358.68 ozs. of silver and 56.074 of gold, or \$1,177.65 in gold and \$466.23 in silver, making a total per ton of \$1,643.93. The second sample yielded at the rate of \$1,160 in gold and \$475.80 in silver, or a total per ton of \$1,635.80.

11th: Two new tanks, working the same as cages, for hoisting water are now in operation at the new Imperial-Empire shaft. The two tanks have a hoisting capacity of 316,800 gallons per day. The water which raised above the drills after the breakage a few days ago, yesterday at noon had been reduced to within a couple of feet of the track floors of the drifts.

Trespass, 9th: In the Opbir, the shaft was down 220 ft. last night, with softer ground at the south end. Gould & Curry is being slowly cleared of water. Savage shaft has been sunk the usual depth this week.

...In Hale & Norcross, a drift has been started from the 1,030-ft. level. Chollar-Potosi incline is down 156 ft. Kentnack mine was never looking better. Crown Point looks well. In Belcher, the cross-cut at the 850-ft. level is yet in clay and porphyry. The main east drift—730-ft. level—has exhibited a marked improvement. Overman ore improves at the 1st and 3d levels north.

The following is the statement of the amount of bullion shipped during the past week by Wells, Fargo & Co., in this city: 3,394 lbs. of assayed bullion, valued at \$97,839.22. Gold Hill, 5,502 lbs., valued at \$190,005.53.

NEW MEXICO.

Santa Fe Gazette, April 4th: Col. R. A. Kenzie and others have organized a company, with a capital of one million dollars, for the purpose of carrying on silver mining in the Magdalena Mountain.

OREGON.

Jacksonville Sentinel, May 2d: The work lately done by the Occidental was an experiment. It has proved satisfactory, leaving a good profit, after paying expenses of quarrying and crushing, and the mill will resume work as soon as sufficient rock can be got out to commence on.

Messrs. F. and T. Newland, Fox and Patty, are running a tunnel into the hill facing Allen Gulch, Josephine county. They have prospected the hill and find a deep channel near the summit, and have found also that all the gulches that have cut this channel have been rich, while those which have not cut it have never paid. The tunnel at present is in 190 ft., and they expect to have to run 25 ft. further before striking the channel. Two shifts of hands are being worked, so that the labor ceases not by day or night.

The Dalles Mountaineer says that Stephen H. Meek, the old pioneer guide, has left for the Emigrant diggings region. He expects to raise a company of prospectors at Canyon City.

KEROSENE LAMP EXPLOSIONS.—The following valuable hints are from an article in the Boston Journal of Chemistry: A lamp may be filled with bad kerosene, or with the vapor even, and in no possible way can it detonate, or explode, unless atmospheric air has somehow got mixed with vapor. A lamp, therefore, full, or nearly full, of the liquid, is safe; and also one full of pure warm vapor is safe. Explosions generally occur when the lamp is first lighted, without being filled, and late in the evening, when the fluid is nearly exhausted. The reason of this will readily be seen. In using imperfect or adulterated kerosene, the space above the line of oil is always filled with vapor; and so long as it is warm, and rising freely, no air can reach it, and it is safe. At bedtime when the family retire, the light is extinguished; the lamp cools, a portion of the vapor is condensed; this creates a partial vacuum in the space, which is instantly filled with air. The mixture is now more or less explosive; and when, upon the next evening, the lamp is lighted without replenishing with oil, as is often done, an explosion is liable to take place. Late in the evening, when the oil is nearly consumed, and the space above filled with vapor, the lamp cannot explode so long as it remains at rest upon the table. But take it in hand, agitate it, carry it into a cool room, the vapor is cooled, air passes in, and the vapor becomes explosive. A case of lamp explosion came to the writer's knowledge a few years since, which was occasioned by taking a lamp from the table to answer a ring of the door bell. The cool outside air which impinged upon the lamp in the hands of the lady, rapidly condensed the vapor, air passed in, explosion occurred, which resulted fatally.

USE OF DIFFERENT IRON ORES.—Robert Hunt, F. R. S., keeper of the Mining Records of Great Britain, publishes the following list of the varieties of commercial iron ore produced in that country, showing the proportions in which they are employed in British iron manufactures:

Red Hematite, 15 per cent; Brown Hematite, 13; Oolitic brown Hematite, 26; Black Band, and Argillaceous Ores, 42; Spathic Ores, 2; Magnetic Oxide, 2.

THE case of the Nicolson Pavement Company vs. the Stow Pavement Company, action to restrain defendants from manufacturing or laying block pavement, was decided in the U. S. District Court on Tuesday in favor of the defendants.

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR

G. W. M. SMITH, W. B. EWER, A. T. DEWEY.
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Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting
Agent, and all subscriptions, or other favors extended to
him, will be duly acknowledged at this office, Jan. 11, 1866.
Mr. C. T. Knapp is our duly authorized agent for
San Francisco County, Nov. 29, 1867.
Dr. L. G. Yates is our duly authorized traveling
agent, July 6, 1867.
Mr. A. B. Butler is a duly authorized traveling
agent for this paper, July 15, 1867.

San Francisco:

Saturday Morning, May 16, 1868.

Notices to Correspondents.

A WELL-WISHER TO SCIENCE is informed that the foreign members or Fellows of the Royal Geological Society of London, usually number from fifty to sixty. The last list which we saw contained the names of six Americans. A foreign member is not called upon to pay any admission fee or annual subscription. Such members are usually elected only at the annual meetings, and at the recommendation of the Council. A foreigner may, however, be proposed at any of the ordinary meetings by any Fellow of the Society, and balloted for in the same manner as is employed in the case of ordinary Fellows. In the required preliminary certificate, in the case of foreign candidates, the proposer, whose name stands first, need not certify to personal acquaintance; but only to his knowledge of the works and the respectability of the candidate; nor need the certificate state that the candidate is desirous of becoming a foreign member. The usual number of ordinary members amounts to 900, which, with fifteen honorary members from the original society, half a dozen royal personages and the foreign members above noticed, make up a total amounting to nearly 1,000.

ANOMALY.—The phenomena you witnessed are due to what is called dimorphism, first noticed by Mitscherlich. Sulphur, the article you was experimenting with, is one of the readiest substances obtainable for exhibiting the phenomena, for when crystallized by fusion, it affords oblique rhombic prisms; but when precipitated from solutions, it is deposited in the form of rhombic octohedrons. Carbon is found in the diamond, crystallized as octohedrons; but in graphite (plumbago) in hexagonal plates. Carbonate of lime in calc spar, possesses the rhombohedral structure; but in arragonite that of the regular octohedron. There are many other analogous cases. It has been found that in cases of dimorphism, each form has its peculiar density; the specific gravity of calc spar for instance, being 2.71; that of arragonite is 2.94. The temperature at which the crystals are formed is found to be an important influencing cause; for when carbonate of lime is precipitated by adding chloride of calcium to carbonate of ammonia, the precipitate is found to consist of rhombohedral crystals, if thrown down at a temperature of 50°; but possessing the octohedral form if the solution is 150°.

GALLIA.—Your opponent was correct in stating that many of the asserted discoveries of Lavoisier have more than been overshadowed by Ray and Mayon; and others are justly due to Black, Scheele and Cavendish, and the discovery of oxygen was undoubtedly due to his friend Priestly. In extension of the memory of Lavoisier, it must however be borne in remembrance that the untimely manner in which his valuable life was cut short, rendered it impossible for Lavoisier to afford many personal explanations, which, had he lived, he would have been enabled to do, and most probably would have done, which would have tended very much to modify the severity of his more virulent critics.

J. ROSS BROWNE'S SUCCESSOR.—It has been reported that Rossiter W. Raymond, of the *American Journal of Mining*, was the man; but the report was probably premature. At any rate, we have not seen any telegram announcing the fact.

Petroleum for Steam Fuel—Economic Considerations.

The experiments recently undertaken in various parts of the Eastern States, for utilizing petroleum as steam fuel, and which excited so much interest on both sides of the continent, seems to have been finally transferred to San Francisco. We have already alluded to several experiments in this direction, undertaken by Col. White, of this city, the inventor of the California system for burning petroleum, and also to those made on Mission street by the California agent of the "Foote Patent." Both these gentlemen have been actively engaged during the greater part of the winter and spring in furthering the interests of their respective patents. Col. White has been lately experimenting with one of the city fire engines, and has also had two large retorts made for the Aetna Foundry, to be used in making steam for driving the machinery of that establishment. Satisfactory success has thus far attended his efforts, although his projected series of experiments has not yet been completed.

The "Foote Patent" process has been placed upon the steamer *Amelia*, and a preliminary trial was made on Saturday last between Broadway wharf and Hunter's Point—about seven miles out and in. We understand that the experiment was quite satisfactory to the parties interested. Further trials will be made in a few days, with the view of testing the comparative cost of coal and petroleum for the production of steam.

The utilization of petroleum for steam fuel is a matter of much importance, particularly on this coast, where the inauguration of steam communication between San Francisco and China, involving voyages of over 6,000 miles, without coaling stations, has demonstrated, in a most striking manner, the necessity of a more condensed form of fuel than any hitherto employed. The question is also one of much scientific interest, and has elicited much study from the chemist, the economist and the expert. We have already alluded, in previous issues of the *Press*, to the fact that the use of petroleum for steam fuel might be proven of no economical value in our Eastern cities, and still become a most important and practical success on the Pacific Coast. This contingency may arise from the great comparative difference between the value of coal and petroleum in New York and San Francisco.

A knowledge of the composition of different kinds of fuel will enable us to arrive at a tolerably definite conclusion as to their various calorific powers. The steam-generating power of any other kind of fuel is usually reckoned by the amount of water which any given weight will evaporate, starting from the boiling point. Numerous, careful experiments have established the following facts:

One pound of the best anthracite or carbon will evaporate 15.5 pounds of water; one pound of hydrogen will evaporate 64.2 pounds of water. This, of course, involves a perfect combustion of every particle of the fuel. One pound of carbon, in burning, unites with only 2½ pounds of oxygen, while one pound of hydrogen, in burning, unites with eight pounds of oxygen. The greater amount of oxygen which in the latter case enters into combustion accounts for the greater amount of heat developed.

If we could obtain hydrogen as cheaply as we can carbon, we could make steam with that substance for less than one-quarter the cost of making it by coal. That, however, in the present state of human knowledge, being an impossibility, the best we can do is to obtain the two substances in their most favorable state of natural combination as we find them in the earth, as crude petroleum. We find this substance abundantly in the proportion of C¹⁰H¹⁶; in other words, twenty atoms of carbon combined with sixteen atoms of hy-

drogen. Now an atom of carbon weighs six times as much as an atom of hydrogen; hence we have our crude petroleum, when reckoned according to the specific gravity of its component parts, as six carbon to one hydrogen. Consequently, when we burn one pound of petroleum, its theoretic comparative work may be expressed thus: 6.7×15.5+1.7×64.2=22.49 pounds of water evaporated by one pound of petroleum, against 15.5 pounds which can be evaporated by the best coal. Metcalf, in his work on Caloric, gives the relative proportion, by weight, of the carbon and hydrogen in crude petroleum, or petroleum, as carbon, 88.5, hydrogen, 11.5. This would slightly vary the above, so as to make the result stand 21.09 pounds of water as the evaporative power of one pound of petroleum.

Our petroleum experimenters claim that they are able to effect a complete combustion; while in the best coal furnaces for making steam, it is well known that there is a loss of twenty per cent. of coal in cinders, ashes and waste gases. Hence there must be deducted from the practical work of coal about one-fifth of 15.5, which will leave but 12.4 as the practical evaporative power of that fuel, against 22.49 as the work of petroleum. Consequently, the practical heating power of petroleum is 1.814 times greater than that of coal.

Having arrived at the relative evaporative power of the two fuels, let us now look at their comparative cost. The crude petroleum, from Santa Barbara, can be delivered in this city, in bulk, just as soon as there is a large and constant demand for the same, at a cost which need not exceed \$20 per ton; while anthracite, delivered here, costs \$23. These figures, considered in connection with 1.814, the heating power of petroleum, as above given, show that, with proper conveniences for the transportation of petroleum, steam can be generated here, by that fuel, fifty per cent. cheaper than it can be done with coal.

Zinc to Improve the Action of Quicksilver.

It seems not to be generally known that zinc with quicksilver—about one ounce or less to ten pounds of quicksilver—increases the retentive efficiency of the quicksilver for gold and silver to a remarkable degree. This may be attributed to the rough and barbed edges peculiar to the fracture of cast or semi-fluid zinc; similar to the state in which it appears in the amalgam.

Some similar action is effected by sodium amalgam, by the use of gritty silver for amalgamation of battery aprons, and finally by the use of amalgam, rich in gold, in astra, batteries and pans. In either case the effect is superior to that of plain quicksilver, the surface of which, by its smoothness, offers less resistance. Zinc, of all metals, exhibits the strongest inclination to this peculiar barb-like crystallization. Even in the melted condition, the passage between the particles is far from smooth; but rather, as it were, bristled with innumerable barbed hooks, which grapple the gold and silver, instantly taking it up from any substance passing through it; and to this peculiarity may be traced the extraordinary retentive faculty of the melted zinc, for gold and silver, far surpassing that of any other substance in existence. Millmen will find it of great advantage to use zinc with their quicksilver. The use of it in this manner is not patented, but has been employed in Mexican mines, and is therefore free to all. It requires only to be known to be appreciated. One dollar's worth of zinc saves pounds of gold and silver.

It should be remarked that it does not injuriously affect the bullion, for in melting this into bars the zinc is volatilized.

R. D'HEUREUSE.

San Francisco, May 7th, 1868.

CONTINENTAL Life Insurance Company,
302 Montgomery street, corner of Pine.

Foundry and Machine Work—The Aetna Works.

The improvement in foundry and machine work is more and more perceptible as the season advances. All the various establishments appear to be quite busy at the present time. There will not be so much quartz machinery ordered this summer as in past seasons; although there will be a more general employment of the machinery already at the mines than ever before. Miscellaneous orders, however, for sawmills, flour mills, etc., are somewhat in excess of former years. Many new mills are being erected, and a large number of old mills are putting in new or additional machinery. There is also an important improvement in the demand for architectural castings. Iron is rapidly coming into very general favor for building fronts in this city. Its cheapness, durability and beauty all combine in its favor.

The Dooley Block, now in process of erection, adjoining the Cosmopolitan Hotel, Sansome street, presents some new features in this line of work. The castings for this structure are from the Aetna Foundry, the proprietors of which, we understand, are about to apply for a patent for a new and improved method which they have devised for molding arches. This block will cost very nearly \$100,000. The lower portion will be occupied for stores, while the upper stories will be connected with the Cosmopolitan, and form a portion of that extensive hotel. They have also just completed the iron front for a block at the southwest corner of California and Battery streets; and are about commencing work for another front on the southeast corner of Sansome and Bush streets, where Mr. Charles Land is about to erect a new block. About 100 tons of iron will be required for this work.

While passing through the Aetna Works, a few days since, we noticed among other descriptions of work in process of completion, an engine for a new sawmill, now being erected by McPherson & Wetherbee, lumber dealers of this city, at Noyo River. Also a 10-stamp quartz mill, with engine and boiler, for parties in this city, which will be put up at a mine in Siskiyou county. We are pleased to note that the stamp-stems and shafting for this mill have all been forged at the Pacific Forge Co's Works, on the Potrero. These are the first stamp-stems which have been forged on this coast. The stems heretofore employed have been of rolled iron, brought from the East. Those to which we now refer, have been forged from the bloom. Forged or hammered stems are much stronger, and more durable than those which have been rolled. The extra cost is but a trifle, compared to the advantage gained in durability. It is an important step in the progress of mechanical operations in this State that we have recently become quite independent of the East for nearly everything in the way of forging. The rolling works, also under the same management, are rapidly approaching completion, so that we shall soon be able to add still another heavy and important branch to our rapidly increasing mechanical industries.

This establishment is also engaged in the manufacture of a new and improved steam feed-pump, the invention of W. W. Hanson, one of the proprietors. The design of this invention is to provide a pump which shall be just as effectual as the common feed-pump, but at the same time more simple and less liable to get out of order. The peculiarities of this pump consist in its being direct-acting, without crank or fly-wheel, with no dead center, and capable of being driven at any practicable speed. The steam cylinder, water cylinder, steam chest, valve, piston, piston-rod and plunger, comprise only four pieces.

The iron work for one of Hayes' Patent Fire Escapo ladders has just been turned out at these works. The wood work for the same

has been constructed by Black & Miller. A full description of this invention, with particulars of its practical trial, will probably be given in two or three weeks. It is now in the paint shop, receiving its finishing touches.

White's Patent Petroleum Burner, a California invention, recently patented through the agency connected with this office, will soon be applied to the boiler furnaces of these works.

They are also building three of Varney's new quartz grinders, which have been on trial in this city for several months past, and which appear to give very good satisfaction. The quartz is ground dry—not crushed—to an impalpable powder, so as to thoroughly free all the gold from the rock, and leave it in a most favorable condition for amalgamation. We also noticed a large amount of shafting, pulleys, etc., just completed, for the San Francisco Cordage Co. at the Potrero, which establishment is materially increasing the extent of its manufacturing facilities. We are pleased to notice that the Aetna folks have recently been obliged to increase the area of their foundry building, to accommodate the increasing demands for room at this establishment.

A LITTLE TOO FAST.—We find the following in Thursday's *Commercial Herald*:

"An article descriptive of a considerable quantity of type metal, from the Montezuma mine, Humboldt county, Nevada, was published in the *Commercial Herald* and *Market Review* of Dec. 28th, 1867. It was of much interest, and the details were obtained at the time from Faulkner & Sons, type foundry in this city. This article was appropriated, without credit, by the *Scientific American*, published in New York, and in course of time found its way back to this city, where it was once more republished by the *MINING AND SCIENTIFIC PRESS*, without credit to any one. On the 7th of this month, the *Bulletin* extracts some portions of the article and conscientiously credited the *MINING AND SCIENTIFIC PRESS* for our property, which we had prepared for our readers four months ago.

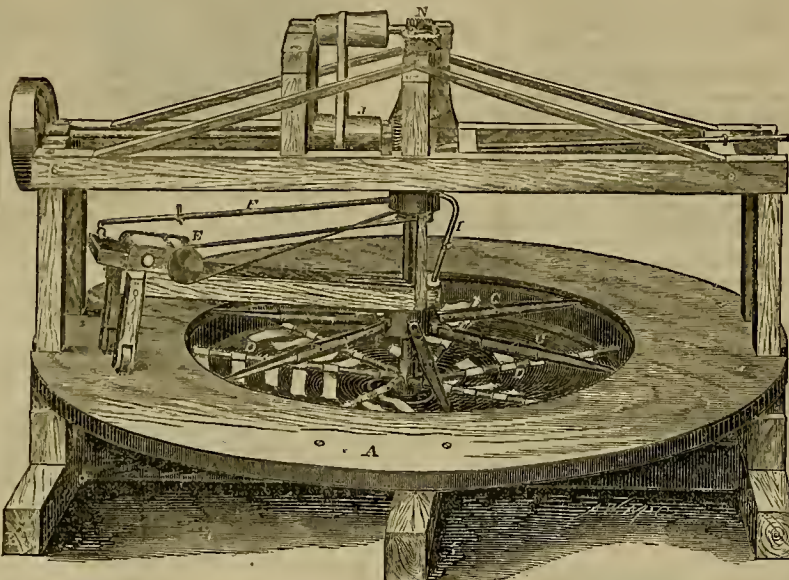
Some of the Atlantic commercial and financial journals have contracted the habit of appropriating our views and remarks, and reproducing them as their own. We confess to feeling rather flattered by their indorsement, but beg to suggest the propriety of doing to others as they would that others should do unto them, and while conferring upon us the honor of their approval, give us the credit which is our due. Money, time and labor are freely expended in the preparation of this paper, which is got up for the interests of California and the Pacific coast, in so far as the unvarnished truth will permit, and no further, and with which the interests of its proprietors are identified. We have felt more aggrieved on this occasion than usual, as the *Bulletin* is not a journal which quotes without giving to Caesar the things which are Caesar's, when it knows the just owner; but in this instance it should have known, and governed itself accordingly."

As soon as the reader has recovered his breath, he will please lend us his ear for one moment. The fact in the case is simply this. The article on type metal in our issue of May 2d,—the only one which we have published,—was prepared expressly for this paper by Mr. Nason himself, the Superintendent of the mine alluded to,—who chanced to be in town at that time. Upon reading the above, we sent to the *Herald* office for a copy of its December issue aforesaid, and carefully compared its "property, prepared four months ago," with the article in the *PRESS*. In one single paragraph, we notice a similarity in the wording; suggesting the probability that Mr. Nason,—from whom, by the way, some of the points in both cases doubtless originally came,—had the *Herald's* article in his mind at the time.

This is "the head and front of our offending." No paper is more scrupulously careful to give due credit, when using the language of another journal, than the *PRESS*. The *Bulletin* was perfectly right in crediting its extract to the *PRESS*. If the editors of the *Commercial Herald* had taken the pains to compare the two articles before rushing into print upon the subject, they would have seen that they were not the same. We advise our lively young friends to "look"—the next time—before they "leap."

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It can be easily run by one man turning a crank. The principle on which it works is entirely dissimilar from any other machine now used on the Pacific Coast; although it is in almost universal use in Europe; but not so arranged there as to be automatic in action.

The illustration given herewith, was fully described in the *Mining and Scientific Press* of March 21, 1868.

One of these machines may be seen in constant operation at the Eureka (Watt's) mine in Grass Valley, where it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill, near Virginia City.

For further information, apply to THOMAS N. PAINE, Grass Valley, California.

PAINE & STEPHENS.

13v16eow

CRYOLITE.—We would further inform our last week's correspondent "Smelter," in regard to the mineral named above, that a company in Western Pennsylvania has within two years imported 9,000 tons into Philadelphia, for use in the preparation of soda and its salts, and of sulphate of alumina. Another company is about to carry on the manufacture of "hot cast porcelain" from it. By fusing it with silica, a beautiful glass, stronger than ordinary flint glass, is made, which will probably furnish the material of many utensils for chemical and pharmaceutical use.

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 adhere quite firmly to each other. They
 are now dried, and with benzine it is easy
 to separate them from the fine paper and
 paste them, or else paste the whole on card-
 board and then separate. Dr. Vogel has
 made some successful attempts to transfer
 carbon prints to glass. For this purpose
 the developed carbon print which still rests
 on the caoutchouc paper, is floated on a so-
 lution consisting of gelatine 12 parts, gly-
 cerine 3 parts, and water 100 parts. Next
 on the warm plate of glass a little of the
 above solution is poured; the picture is
 laid on this, and the surplus of the gelatine
 is removed by pressure with the fingers;
 when nearly dry the picture is brushed
 over in order to tan it, with a solution of
 one part of chromate of iron in 300 parts
 of water; after this it is allowed to dry com-
 pletely, and is then, by means of benzine,
 dissolved off. On opal glass these pictures
 are very pretty, particularly when the tissue
 is of a brownish tone. These positive car-
 bon prints on glass may become import-
 ant in the future, for it is easy to make
 from the positive carbon print on glass a
 negative carbon print on glass also, and
 thus we would have the means of supply-
 ing negatives and giving the latter a per-
 manence equal to the carbon print.

LAKE MICHIGAN—CURIOUS FACTS.—The
 Chicago Times of March 26th says: "The
 water in Lake Michigan is said to be five
 inches lower than has been known before
 for 18 years, and 30 inches lower than it
 was six years ago. This calls to mind some
 curious facts in regard to the rise and fall
 of the lakes. It has been ascertained that,
 with considerable regularity, there is a pe-
 riodical ebb and flow in the lake, the water
 rising gradually from seven to nine years,
 and subsiding in the same manner, while,
 at long intervals, the waters reach an un-
 usually high and low stage, exactly corres-
 ponding with the rise and fall of the waters
 of the sea at the spring tides.

Another noticeable fact is that, in the
 spring, at a period when the discharge into
 the lakes is the greatest, and when they are
 least affected by evaporation, the water is in-
 variably the lowest. In the fall, after the
 subsidence of the spring freshets, and when
 under the full effect of the summer's
 droughts, and after the evaporation has
 been the greatest, it is found that, instead
 of any abatement in the volume of water
 in their basins, there has been a gradual
 rise during the entire summer. These are
 the facts, and, although they have engaged
 the attention of scientific men, no solution
 has yet been reached. It has become ap-
 parent that the lakes are not affected by
 freshets, droughts or evaporation. But
 whether these phenomena are the effect of
 subterranean channels and outlets, a sort
 of mystic connection which brings the lakes
 within the influence of inter-oceanic cur-
 rents, is still an unsolved problem.

WOODEN VISITING CARDS.—Abbot R.
 Davis, of East Cambridge, Mass., has taken
 out a patent for what perhaps will come to
 this. His claim reads as follows:

"I take a log of wood of any suitable
 description, and cut it by machinery into
 thin sheets or laminae, in a well-known man-
 ner, after which they may be bleached or
 not, as desired. I then paste two of these
 sheets together, the direction of the grain
 of the upper sheet crossing that of the
 lower sheet, and submit them to heavy
 pressure by passing them between rolls,
 thus destroying the rigidity and condensing
 the fibers and closely uniting the two sheets
 together so as to avoid any liability of bend-
 ing, twisting or breaking the strip, and
 leaving its upper and lower surface with a
 smooth, hard finish, suitable to print upon.
 The strip may now be cut up into cards of
 the required size. If a highly polished or
 artificial surface is required, it is simply
 necessary to apply an enamel of the desired
 color, in a manner similar to that put on to
 ordinary cardboard. Cards made as above
 described, ready to be printed upon, may
 be furnished at about one-eighth the cost
 of those made from the materials hereto-
 fore used for the same purpose."

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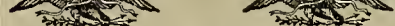
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Brass and Steel Stamps and Dies, 522 Montgomery street,

San Francisco. Orders by express promptly attended to.

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RADICAL CURE

—OF—

RUPTURE!

Treatment of all Deformities of the Body, by DR. A.

FOLLEAU'S process, 624 Washington street, up stairs,

Washington Baths Building, between Montgomery and

Kearny streets.

DR. A. FOLLEAU

Has his studies and manufactories in the same building.

Every kind of Apparatus, Trusses, Orthopedic Instru-

ments, Artificial Limbs, etc., are manufactured and applied

by himself.

He has no connection with any Agency. 2v14 1 1/2 m

Pacific Powder Mills.

SUPERIOR BLASTING AND SPORTING GUNPOWDER;

Black Diamond, in 1 lb. canisters.

do do in 1/2 lb. canisters.

do do in 1/4 lb. kegs.

Hunter's Pride, in 1 lb. canisters.

do do in 1/2 lb. canisters.

do do in 1/4 lb. kegs.

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Pacific Mills River Shooting, in 1 lb. canisters.

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SEND FOR FREE CIRCULAR AND CONFIDENTIAL
ADVICE.

ESTABLISHED.....May, 1890

Mining and Scientific Press PATENT AGENCY.



DEWEY & CO.,
SOLICITORS OF
American and Foreign patents,
505 Clay Street, corner Sansome,
SAN FRANCISCO.

Patent Cases of every kind conducted. Attention given to Re-issues, Extensions, Interferences, Rejections, Appeals, etc., etc.

ASSIGNMENTS, POWERS OF ATTORNEY, AND LETTERS OF ADVICE CAREFULLY PREPARED.

ENGRAVINGS FINELY EXECUTED.

COPIES OF PATENT PAPERS,
Issued by the United States or Foreign Countries, procured in the shortest time possible.

Generous Compliments.

The following is a sample of the generous acknowledgments which we frequently receive. We can only return thank for such gentlemanly obligations, and assure our friends of our best endeavors to merit their respect and kindness:

GROUNTSOWN, January 22, '97.
Messrs. Dewey & Co.—Sir: I have the honor to acknowledge receipt of your letter of the 21st instant, transmitting to me "Letters Patent" on my application through you for an "Improved Machine for Working Ore."
It came to hand safely, and I am pleased to tender you my grateful acknowledgments for your success on my behalf.
Very truly yours,
M. A. WOODSIE.

Blanks, Blank Mining Books, Constitution and By-Laws

— FOR —
**Mining and Prospecting
Companies**

Elegantly printed, with care and dispatch, at the office of the

Mining and Scientific Press.
Orders from the Interior faithfully attended to.

New Mining Advertisements.

Adella Gold Mining Company, Rock Creek,
Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of May, 1898, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, 318 California street, up stairs, San Francisco. my16

Chilpaneca Mining Company—District of Ures,
Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of May, 1898, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. my16

Great Central Mining Company—Location of
Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1898, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street, San Francisco. my16

Changing the Address.—No charge is made for changing the address of this paper. To give all necessary information, write us plainly as follows: "Change address of the Mining and Scientific Press from Mr. ... P. O. ... County, ... State, to Mr. ... at ... P. O. ... County, ... State." 189-1

Old Colony Silver Mining Company—Location
of Works: Austin, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1898, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 525 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

Office, 525 Montgomery street, San Francisco. my16

Rogers Silver Mining Company—Location:
Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1898, an assessment of one dollar per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold and silver coin, to John Barton, Treasurer, at his office, No. 218 Sacramento street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixteenth (16th) day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JULIN F. POPE, Secretary.
Office, No. 218 Sacramento street, San Francisco. my16
Enterprise, Virginia City, please copy and send bill to this office.

Whitman Gold and Silver Mining Company.
Location of Works: Indian Springs District, Lyon County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of May, 1898, an assessment of ten dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, room No. 10, 2d floor of No. 402 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Tuesday, the sixteenth day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the eleventh day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office, 402 Montgomery street, (Room No. 10, 2d floor) San Francisco, Cal. my16

Mining Notices—Continued.

Black Ledge Gold and Silver Mining Company,
Lander County, Nevada.

Notice—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1898, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. shares.	Amount.
C. H. Light	64	8	\$2 50
R. W. Heath	16	8	80 00
S. J. Greene	17	8	80 00
J. A. Drinkhouse	210	1	10 00
Asaph Gray	22	1	10 00
H. F. Custer	212	1	10 00
R. E. Waterman	51	2	20 00
T. E. Bidleman	18	1	10 00
Geo. F. Sharp	149	40	40 00
C. J. Bateman	193	81 9-16	815 62
N. H. Hanchett	91	5	50 00
W. Nicol	91	1	10 00
J. Camp	100	95	100 00
Joe White	97	15	150 00
H. L. Hawley	95	10	100 00
J. E. Bidleman	100	10	100 00
E. G. Bidleman	129	4	40 00
E. G. Bidleman	141	9	90 00
Ezra Gregg	114	11	110 00
Ezra Gregg	120	12	120 00
Chas. G. Gregg	116	12	120 00
J. W. Harker	21	1	10 00
C. D. Bonestell	164	10	100 00
C. D. Bonestell	165	10	100 00
C. D. Bonestell	166	20	200 00
C. D. Bonestell	171	10	100 00
Jacob Bartz	27	12	120 00
Mrs. B. A. Aud	201	10 15-16	197 38
A. A. Rand	213	90 3-4	908 50
D. H. Crowe	214	1	10 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1898, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1898, at the hour of 2 o'clock P. M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. m2

Chalk Mountain Blue Gravel Company—Location
of Works: Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the sixteenth day of March, 1898, an assessment of one dollar and fifty cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twelfth day of May, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. my21

Office of the Folsom Street and Fort Point
Railroad and Tunnel Company.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of April, 1898, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Caleb T. Fay, at the office of the Company, Room No. 16 Stevenson Block, on the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the twenty-sixth day of May, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the eleventh day of June, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. my2

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

Stockholders' Meeting.—Notice is hereby given, that a Meeting of the Stockholders of the Globe Gold and Silver Mining Company, Monitor Mining District, Alpine County, California, for the election of Trustees and the transaction of other business, will be held at their office, corner Union and Montgomery streets, San Francisco, Cal., on WEDNESDAY, the twentieth day of May, 1898, at 7 o'clock P. M. By order of the President.

J. WINCHESTER, President.
V. B. Post, Secretary. ap25

Hoppe Gravel Company. Location of
Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of May, 1898, an assessment (No. 23) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 353 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Wednesday, the tenth day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-ninth day of June, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 573 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. m9

Honest Miner Gold and Silver Mining Company,
Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. shares.	Amount.
H. H. Allen	310	80	\$80 00
Chas. Bertoldi	317	10	100 00
R. F. Bunker	136	1	10 00
W. B. Bradley	295	1	10 00
Jacob Bartz	344	5	50 00
H. F. Custer	349	1	10 00
Joe Camp	238	10	100 00
J. A. Drinkhouse	347	1	10 00
L. Dinkelspiel	148	4	40 00
L. Dinkelspiel	173	4	40 00
M. Dow	134	1	10 00
P. A. Dow	135	1	10 00
Asaph Gray	348	10	100 00
Chas. E. Gibbs	169	3	30 00
John W. Harker	346	1	10 00
S. M. Hills	184	1	10 00
John L. Jones	219	10	100 00
Chas. W. Brooks, Trustee	214	5	50 00
Chas. D. Kellum	172	4	40 00
J. C. Lander	42	4	40 00
Joe Lander	132	10	100 00
Thos. J. Lamb	246	6	60 00
Morrissey	194	2	20 00
W. McMahon	170	2	20 00
Wm. Nelson	211	1	10 00
W. L. Perkins	220	14	140 00
L. T. Rainow	203	2	20 00
A. A. Rand	100	100	1000 00
S. S. Solomon	180	2	20 00
S. S. Solomon	183	10	100 00
J. B. Williams	221	10	100 00
W. B. Harker	167	1	10 00
W. B. Harker	191	5	50 00
O. P. Warren	201	2	20 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1898, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1898, at the hour of 2 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, No. 223 Clay street, San Francisco. m2

I. X. L. Gold and Silver Mining Company—Location
of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth (4th) day of May, 1898, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirteenth (13th) day of June, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNINSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. my9

Joe Lane Gold and Silver Mining Company,
Lander County, Nevada.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-fifth day of March, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
J. A. Drinkhouse	172	1	\$10 00
Asaph Gray	171	1	10 00
H. F. Custer	174	1	10 00
T. E. Bidleman	175	1	10 00
Geo. F. Sharp	27	4	40 00
H. H. Allen	35	21	210 00
H. H. Allen	181	50	500 00
D. E. Bunker	60	20	200 00
R. E. Waterman	78	2	20 00
C. H. Light	161	6 1/2	62 50
W. Nicol	93	1	10 00
J. W. Harker	93	10	100 00
Joe Camp	93	10	100 00
J. C. Lander	140	25	250 00
Mrs. B. A. Aud	129	23 1/2	235 88
D. H. Crowe	175	1	10 00
Jacob Bartz	169	12	120 00
A. A. Rand	170	759 1-16	7590 62

And in accordance with law, and an order of the Board of Trustees, made on the twenty-fifth day of March, 1898, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, by Jones & Bendixen, auctioneers, on the eighteenth day of May, 1898, at the hour of 2 o'clock P. M. of said day to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

D. H. CROWE, Secretary.
Office, 223 Clay street, San Francisco, Cal. m2

Lyon Mill and Mining Company, Kelsey District,
El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of April, 1898, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of May, 1898, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of June, 1898, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. ap25

La Blanca Gold and Silver Mining Company,
District of Ures, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, an account of assessment levied on the twenty-seventh day of March, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Alexander, Jacob	424	24	\$ 2 50
Bertiz, J.	386, 387	24	60 00
Bertiz, Henry	123, 323	6	15 00
Barkhausen, L.	171, 242, 310	12	30 00
Becker, Richard	210, 223, 304, 405	15	37 50
Diefenbach, Eliza	53	10	25 00
Kittlin, Frank	441	3	7 50
Fanjoy, W. H.	430	6	15 00
Fries, S. H.	385	5	12 50
Fischel, Benjamin	279, 354	4	10 00
Harrison, Peter	231	6	15 00
Hubert, Charles	425, 455, 487	30	75 00
Thierier, Gustav	431, 455, 488, 524	25	62 50
Haas, Sol S.	258, 298	6	15 00
Holm, Henry	385	5	12 50
Levy, Louis	201, 311, 383	10	25 00
Laudis, G.	356, 382	6	15 00
Michelson, H.	418	10	25 00
Michelson, Isaac	375	5	12 50
Fluckner, Richard	113, 316	10	25 00
Rosenbaum, Valentine	455	5	12 50
Roth, Adolph	459	25	62 50
Saltzman, Max	168, 269	8	20 00
Wertheimer, E. Trustee	300	12	30 00
Wittfeld, Gustav	437, 443	5	12 50
Zadig, Herman	423	2	5 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of March, 1898, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Manrice Dore & Co., No. 327 Montgomery street, San Francisco, on Saturday, the sixteenth day of May, 1898, at the hour of 12 o'clock, M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOS. GOLOMAN, Secretary.
Office, No. 312 Front street, San Francisco, Cal. may2

Nuestra Señora de Guadalupe Silver Mining
Company—Location of Works: Tayoltita, San Dimas

District, Durango, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 31) levied on the twenty-seventh day of March, 1898, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
M. Meyer	87	5	\$7 50
Pat Tavanagh	364	5	7 50
Joe Frankelheimer	191	10	15 00
John Gelfin	86	10	50 00

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
1st
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

San Francisco, Aug. 29, 1867.

Pacific Iron Works, 9v15t

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PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

—BY—

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—AND—

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—viz: Greater strength, less danger, to working, as goods require no slinging or landing, consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any lashing or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction pawl, or stop, to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VILCAN IRON WORKS CO.,
By JESSE MOORE, President.
JOSEPH MOORE.

2v15tf

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Improved Concentrators.

MR. HUNGERFORD, having been absent in the Interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

2v15tf

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A FULL ASSORTMENT OF

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Constantly on hand and for sale at low prices, by
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Successors to Marwedel & Otto, 312 Bush St., a few doors above Montgomery, San Francisco. 2v15 3m

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Models for Patent Machinery.

All kinds of

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Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clark & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and Patterns of every description. Jig-Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Launderies.

Terms reasonable for all classes of work, and regulated by the style required. 1v16-3m

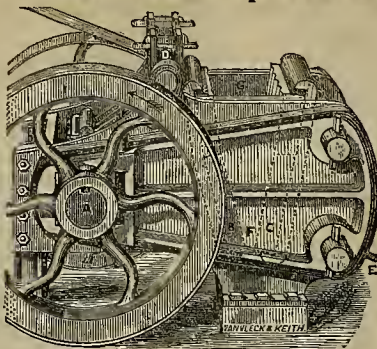
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Brodie's Patented Improvements



FOR THE TREATMENT OF

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BRODIE'S PATENTED IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and fitness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms: No. 1.—Or 8 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600 No. 2.—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour.....1,500 No. 3.—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200

EXPLANATION OF THE ABOVE ENGRAVING. The frame is made of cast iron, bolted with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the mevable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening. F, which can be regulated at pleasure, so as to graduate to the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, B, moves the mevable jaw, B, forward and downward method at the same time, and which makes the hardest rock yield and separate into fragments of any desired size.

The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tuolumne county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco.

The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tuolumne County: "RAWHIDE RANCH, Tuolumne Co., Sept. 28, 1866. JAMES BRODIE, Esq., San Francisco—My Dear Sir: It gives me pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which has entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly, R. P. JOHNSON, Supt. Rawhide Ranch Quartz Mill."

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers. For the present it is not intended to grant licenses for the use of the Improved German Barrel, for a longer term than twelve months. All persons desirous of procuring, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866. JAMES BRODIE, Esq., Fulton Foundry, or CHARLES RAGLIER, Express Building, 402 Montgomery street, San Francisco.

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PORTABLE MILLS.

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DUTCH ANCHOR BOLTING CLOTHS.

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AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by D. ROYER, at 425 Brannan street, between Third and Fourth. Belts to Elsen Bros, Pioneer Mills; Martin Stew, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

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Thomas Firth & Sons' Cast Steel, Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

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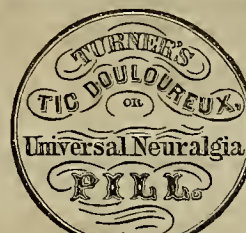
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Speedy Cure

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Its Effects are

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It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three pills. No other form of Neuralgia or Nervous Disease has failed to yield to this

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Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can always be used with

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It has long been in constant use by many of our most EMINENT PHYSICIANS,

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	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	43 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by
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Formerly James Brokaw, Proprietor.

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Modern Improvements in Machinery,

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FOR SALE.—ROCK DRILLING MACHINES (Gardner's Patent) for sinking shafts. One man with this machine can do as much tunnel and drifting work in one day as four men can do with any other machine. Apply to JOHN OVEREND, Press Room, 514 1/2 Clay street, San Francisco. 18v16-3f

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THE UNDERSIGNED, HAVING BEEN APPOINTED Sole Agent for the Pacific Coast for the sale of RUFER'S BREECH-LOADING SHOT GUN, which discharges four shots in two seconds, circulars will be furnished by applying to or addressing

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Or Lock Box 1172 P. O., San Francisco. 18v16-2m6m

Mechanical Drawings.

Persons wishing Mechanical Drawings can obtain the services of competent draughtsmen, by applying to this office

COMPOSITION FOR ARTIFICIAL TEETH.—

One part of very finely pulverized glass is mixed with three parts of finely ground oxide of zinc, which has been previously submitted to red heat, in order to expel all the carbonic acid and water it may contain. Then one part of borax is dissolved in the smallest possible quantity of hot water, and the solution added to 50 parts of a very concentrated solution of chloride of zinc (specific gravity 1.5 to 1.6). The mixed powder of glass and oxide of zinc is then moistened with enough of the above solution to form a homogeneous paste, which must be used immediately, as it hardens in a few minutes. The borax is only added to retard the solidifying of the mass. By addition of small quantities of ochre, the lighter and darker shades of the teeth can be imitated. When the mixture is completely solid, it is fully as hard as marble.

ANOTHER COMPOSITION—SAME PURPOSE.

The enamel of the teeth of oxen,—or still better of carnivorous animals,—is exposed to red heat, until the carbonate of lime contained in it is changed into caustic lime; it is then ground to the finest powder. To this, water is added, drop by drop, so that hydrate of lime is formed; and then by gently heating it, the superfluous water is expelled. This dry powder is now mixed with phosphoric acid of the consistency of syrup, to form a thick jelly; and then, as quickly as possible, some hydrate of lime in powder is added, until it forms a stiff paste. The operation must be performed quickly, as the mass hardens in a few seconds. The more lime added, the more durable the mass will be; but the more quickly the hardening takes place. If more phosphoric acid is used, it remains longer in a soft state, but is less durable. The lime should be chemically pure,—since alumina and silica prevent the intended union. A little magnesia causes the mass to remain soft longer, even if more lime is added; but the presence of magnesia is not desirable,—since the phosphate of magnesia will partially dissolve in water. It is not well to use the lime immediately after being slacked; it must have stood for some time. It does not matter if it has attracted a little carbonic acid from the air. Likewise, the phosphoric acid should not be used soon after being heated, dissolved or diluted. The best is the glassy phosphoric acid, after its spontaneous liquefaction. It should be of the consistency of syrup; or contain so much water, that the water of the acid together with that of the hydrate of lime, may correspond to the formula,—2 equivalents of lime + 1 phosphoric acid + 4 equivalents of water; allowing for the water which evaporates in consequence of the heat generated by the union. The mass will be still more solid, if some hydro-fluoric acid is added to the phosphoric acid; the mixture after standing a few days is to be treated as above directed.

RUSSIAN RAILWAY COMFORTS.—The train from Moscow to St. Petersburg, which runs on the first line ever laid down in Russia, usually consists of half a dozen cars of immense length. Entering by a broad, easy staircase and convenient platform, a person finds himself in a saloon, with a table in the center, surrounded by sofas and divans. Opening from one side of this saloon is a passage leading to the further end of the carriage, and passing on to an iron platform outside. Heavy curtains, pushed aside, reveal three apartments, each furnished with six easy chairs. Another passage leads to similar apartments reserved for ladies. A staircase shows the way to a sleeping saloon above. Double windows exclude the bleak air of the steppe from rushing directly in upon weak lungs; but there is so good a system of ventilation through the roof that the cars are never unpleasantly close. Lastly, there are washing places, dressing-rooms, and other conveniences handsomely fitted up and scrupulously clean. The amusements are numerous and varied. Portable card tables, wax candles, chess, draughts, cards and books are to be had for the asking.

SINGULAR DISCOVERY.—The Chattanooga Union says that Mr. William Staples, while digging recently in a salt lick on his farm, twelve miles northeast of Kingston, Tenn., struck a solid limestone rock, about seven feet below the surface. He found in it a well, about eight inches in diameter, filled with very salt water. After the discovery of the well, Mr. Staples prosecuted his investigations, and to his surprise, found a line of salt kettles, or rather the remains of salt kettles. The kettles were of stoneware, and about forty in number. Growing above them were trees—poplar and oak—which were evidently two centuries old.

FERTILIZERS.—From a discussion upon this subject, reported by the Manchester Mirror as having been held at a recent meeting of the Bedford (N. H.) Farmer's Club, we extract the following: The chairman (Col. George W. Riddle) remarked that a crop of green clover upon an acre, estimated at a ton after it is cured, would be worth, standing, \$10 for hay; if turned under, would be of as much value as a fertilizer as four cords of stable manure, costing \$48. He considered it the best and cheapest method of enriching the soil. * * A gentleman present stated the analysis of a fair average of barnyard manure, by Dr. Nichols, editor of the Boston Journal of Chemistry, and a practical farmer. It was found that, assuming a cord of manure to weigh 3,000 lbs., nearly 2,500 lbs. of it was simply water, more than 100 lbs. sand, and more than 300 lbs. of the balance of no more value than muck, straw or chaff—leaving only 74 lbs. of active fertilizing material, which might be carried in an ordinary basket upon the shoulder to the field. Barnyard manure may be imitated by thoroughly composting with a cord of seasoned meadow muck, 65 lbs. of crude nitrate of soda, two bushels of wood ashes, one peck of common salt, ten lbs. of fine bone meal, two quarts of plaster, and ten lbs. of Epsom salts. It will not cost \$3.50 the cord, and ought to serve as good purpose as animal manure.

CURIOUS DISCOVERY IN CHILE.—The Valparaiso Correo de la Serena relates the following:

We have been informed that at the summit of the Cordillera de Doña Ana, the priest Don José Sagnes, following an ancient track, has discovered a deposit of curious objects. At an altitude of 10,000 feet, a small excavation has been made, from which have been taken a lmanaco made of bone and ornamented with gold, a silver figure weighing three pounds, and another representing an Indian at the time of the conquest. They were all found under a kind of shed made of wood and covered with stones, charcoal, and human wool in a perfect state of preservation.

ELECTRIC TEST FOR OILS.—M. Rossean, discovered that olive oil, the feeblest conductor of electricity, when mixed with one-hundredth of its volume of oil of poppies, increased the number of vibrations of a magnetic needle in a given time, when the same was made to form parts of an electric current. Mr. Warner, an English experimenter, has enlarged the field opened, and shows that difference of resistance will show the purity of oils. He gives a table of resistance of volatile and fixed oils, and as turpentine and alcohol are the principal adulterants of volatile oils, and as the former has an immense resistance and that of the latter is enormously lower than any of them, the variation in the deflector compared with that given in the tables, will detect and show the extent of adulteration.

TRIAL OF SKILL.—The St. Johns (N. B.) News says: A trial of skill between English and American telegraph operators recently took place, the object being to ascertain which is the most expeditious method. So far, we have tidings only of results on this side. The trial over the wires of the Western Telegraph Company, from Washington to Cape Breton, a distance of about 13,000 miles, was very satisfactory. Ninety-four messages, averaging twenty words each, were transmitted over a single wire in an hour. Better time has, however, been made on shorter circuits. On the same night, twenty-three messages were sent from Plaster Cove, Cape Breton, to New Orleans, a distance of 2,700 miles, in thirty minutes.

Favorable to Inventors.—Persons holding new inventions of machinery and important improvements, can have the same illustrated and explained in the MINING AND SCIENTIFIC PRESS, free of charge, if in our judgment the discovery is one of real merit, and of sufficient interest to our readers to warrant publication.

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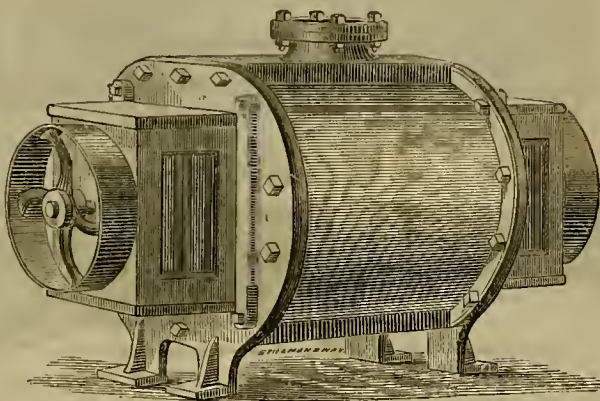
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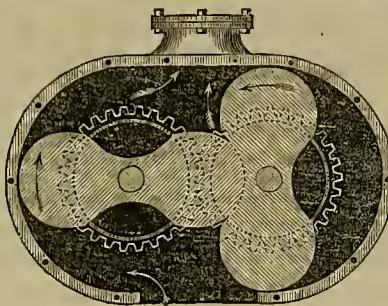
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CAUTION.—Purchasers will find it to their advantage to apply direct to the Stockton Agency, as certain parties, not authorized to manufacture the Blower, have put in the market machines of inferior construction, which do not answer all the requirements of the genuine article.

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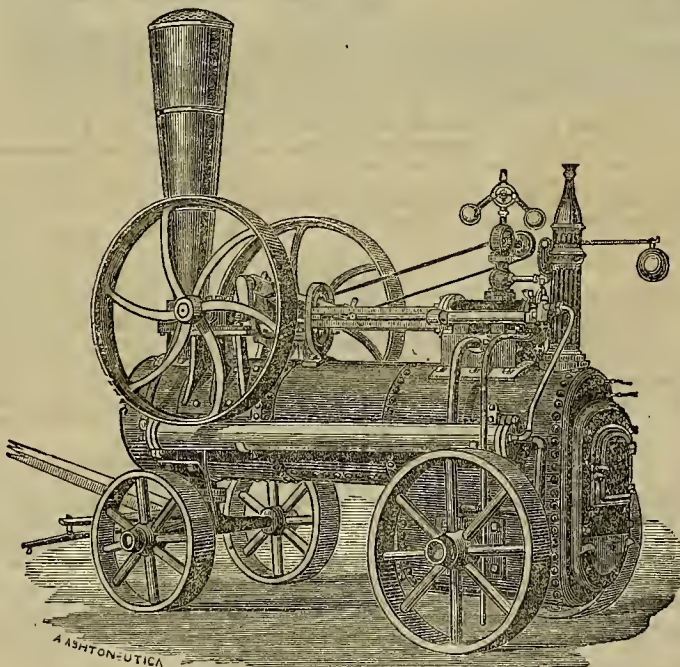
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SUBSCRIBERS who do not receive the Mining and Scientific Press in due time, are requested to inform the publishers.

CREAM TARTAR.—The Lauer Manufacturing Co., New York, are now preparing a cream tartar which is said to approximate in all its qualities, to the purest imported article. It is recommended for its strength, healthfulness, and its beautiful whiteness. It is prepared by a new and simple process of chemical transformation, patented by Mr. John E. Lauer, and represented as especially adapted for baking purposes. Messrs. Hecker & Bro., the largest self-raising flour makers of New York, after a thorough trial, have purchased the right to use it exclusively in their business, believing it better adapted to their purposes than any other article in the market. We learn from Mr. William B. Hooper, 405 Front street, sole agent for California, that it is nearly 50 per cent. cheaper than the imported, of the same strength and quality.

PRESENTATION.—Mr. Morgan, the late Superintendent of the far-famed Hayward mine at Sutter Creek, Amador County, was formally presented by the "employés" in said mine, on occasion of his recent retirement, with a splendid gold-mounted meerschau pipe, made for the occasion, at a cost of one hundred and fifty dollars. The day was duly honored among the citizens of the place by a supper and ball. Mr. M. has held his position for twelve years, and was universally popular.

DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1863. 10-16 Sin

SAVE YOUR TEETH.—Mrs. Jessup & Beers, over Tucker's jewelry store, are now making a specialty of filling the fangs of dead teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty. They are also using Nitrous Oxide for the painless extraction of teeth, when so desired—the only absolutely safe anesthetic ever discovered. In breathing it, it acts as a gentle stimulant, without undue excitement—the sensation produced being truly delightful, the effect upon the lungs healthful, and in its results positively free from all danger. Prepared and administered daily at the Dental Rooms of Messrs. JESSUP & BEERS, corner Montgomery and Sutter streets, San Francisco. 16-161F

HEADQUARTERS FOR HOMESTEAD LOTS.—At Messrs. Dun, can & Co's salerooms you will find maps and plans of the Folsom and Howard street lots, at \$300, in payments of \$30 per month. Lots on Eighteenth and Nineteenth streets, at \$300, in payments of \$30 per month; and lots of the City Land Association, at \$50, in payments of \$4 per month.

KNICKERBOCKER

Life Insurance Company,

OF NEW YORK.

Assets, - - over \$3,000,000.

Number of Policies Issued in 1867, 10,300.

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POLICIES ISSUED AT ONCE,

On receipt of Application at the San Francisco Branch Office, without referring to the Home Office at New York.

Policies Paid in Gold Coin or Greenbacks, at the option of the person insuring.

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Increase of business last year proportionally larger than that of any Company in the world.

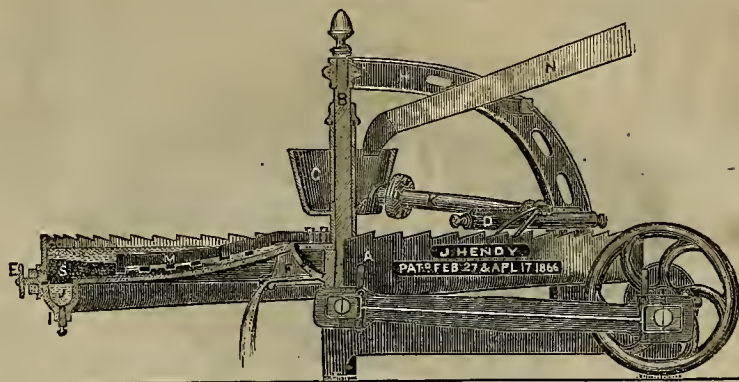
Pacific Branch Office, 430 Montgomery Street, San Francisco.

GEO. T. SHIPLEY, M. D., Manager.

J. H. H. WILLIAMS, General Agent.

Agents wanted through city and State, and Pacific Coast. 20-161F

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators or pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:

FIRST—In setting up, set the pan, A, level by the inner rim, near its center.

SECOND—While in operation, keep the Pan, A, about half full of sulphurets. [See Figure 2, marked S.]

THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.

FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL (8 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (8 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO., Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M & M CO. (3 Concentrators).....	Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.
JAMES HENTY & CO. (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.

J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.

W. H. RODD, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co., }
VIRGINIA CITY, Nev., Sept. 17, 1867. }

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, JR.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

April, 1868.

JOSHUA HENDY, Patentee,
Union Foundry, San Francisco.

W. T. GARRATT, City BRASS AND BELL FOUNDER.



Cor. Mission and Fremont sts.,
SAN FRANCISCO.

Manufacturer of Brass, Zinc, and Anti-Friction or
Babbet Metal Castings:
CHURCH AND STEAMBOAT

BELLS,

TABERN AND HAND BELLS AND GONGS,

FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Liquor, Soda Oil, Water and Flange Cocks, and
Valves of all descriptions, made and repaired. Also
all other joints, Spelter, Solder, and Copper Rivets, &c.
Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles,

HYDRAULIC PIPES AND NOZZELS,

For Mining purposes, Iron Steam Pipe furnished with Fittings,
&c. Coupling Joints of all sizes. Particular attention
paid to Distillery Work. Manufacturer of "Garratt's Patent
Improved Journal Metal."

—Highest Market price paid for OLD BELLS, COPPER
AND BRASS. — 61F

SIXTH INDUSTRIAL EXHIBITION

—OF—

The Mechanics' Institute.

THE BOARD OF DIRECTORS OF THE MECHANICS' Institute hereby give notice that the Sixth Industrial Exhibition of that Association will be held some time in August next, in a building to be erected for the purpose, in Union Square, in this city. Every preparation will be made to accommodate exhibitors and visitors, with a view to make the Exhibition profitable, instructive and pleasant to all parties.

During the three years which have intervened since the holding of the last Exhibition in this city, the manufacturing, mechanical, scientific and useful and ornamental arts have made unprecedented progress on this coast, and it is believed that the proposed Exhibition will exceed any other in value that has ever been held on the shores of the Pacific.

The plan of building to be erected, which has been adopted by the Board of Directors, it is believed will prove to be the best adapted both for display and convenience of the public, of any building ever erected in the State. The building will be perfectly water-tight, being covered with a shingle roof, so that no damage from the elements can be anticipated.

All parties who are interested in any of the branches of Manufactures, Mechanics, or the Arts and Sciences, are invited to exhibit in the proposed Exhibition, and to share in the publicity and consequent profit which always attends such enterprises. Suitable premiums will be offered, and the specific date of opening the Exhibition will be published at some future time.

By order of the Board of Directors.

19-161F

HORACE D. BUNN, Cor. Sec'y.

Sheffield Scientific School

Of Yale College, New Haven, Conn.

This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1863, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY, 2—CIVIL ENGINEERING, 3—MECHANICAL ENGINEERING, 4—MINING ENGINEERING AND METALLURGY, 5—AGRICULTURE, 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$12 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and expensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13-61y16p

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SULPHURETS;

What they are;

How Assayed;

How Concentrated;

And How Worked;

With a Chapter on the

BLOW-PIPE ASSAY OF MINERALS.

By WM. BARTOW, M. D.

Published by A. Roman & Co., San Francisco.

For sale at this Office.—Price, One Dollar.
With the aid of this Book, the miner can assay his own ores, requiring but few materials, etc., except such as are generally to be found in the interior towns. 21-161F

National Mineral Land Law, Instructions. Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

MINING AND SCIENTIFIC PRESS.

Single Copies, Fifteen Cents.

Terms: One Year, \$5; Six Months, \$3.

A Journal of Useful Arts, Science, and Mining and Mechanical Progress.

DEWEY & CO., PUBLISHERS,
And Patent Solicitors.

SAN FRANCISCO, SATURDAY, MAY 23, 1868.

VOLUME XVI.
Number 21.

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MECHANICAL MISCELLANY.—
Fuddling; Shattering; Casting Steel Under Pressure; Uniform System of Screw Threads; Consumption of Smoke; The Siemens' Furnace.
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MINING SUMMARY.—Comprising late intelligence from the various counties and districts in California, Arizona, Colorado, Idaho, Dakota, Nevada, New Mexico, Montana, Washington and Oregon.
San Francisco Weekly Stock Circular.
Notices to Correspondents.
New Incorporations—List of Officers.
Stock Prices—Bid and Asked.
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San Francisco Mining Shareholders' Directory.

Adams' Improved Railway Snow-Plow.

The object of this invention is to provide an improved engine or device for removing the snow from railroads. The peculiarity of the improvement consists in the fact that it is so constructed and attached to the locomotive that light snow can be caused to shoot up the inclined face of the plow, and be there held, if necessary, while the plow is backed out of a tunnel, or cut, and emptied at any convenient point; or it may be so operated as to throw the snow to the right or left of the road, or to throw it all upon one side or

hard or crusted over, the mouth of the machine should be made to cut the snow, before it raises it on the incline, thereby avoiding friction and saving power,—on the same principle that a man saves strength by cutting the snow on the sides with his shovel before lifting it. This is accomplished by giving cutting edges to the front of the sides D, D, as well as the front of the incline C.

The sides B, B, B, can be adjusted at pleasure, so as to hold more or less snow, as may be desired. To accomplish this the lower B,—which should have been lettered B', and which will be so considered in the balance of this description,—is intended

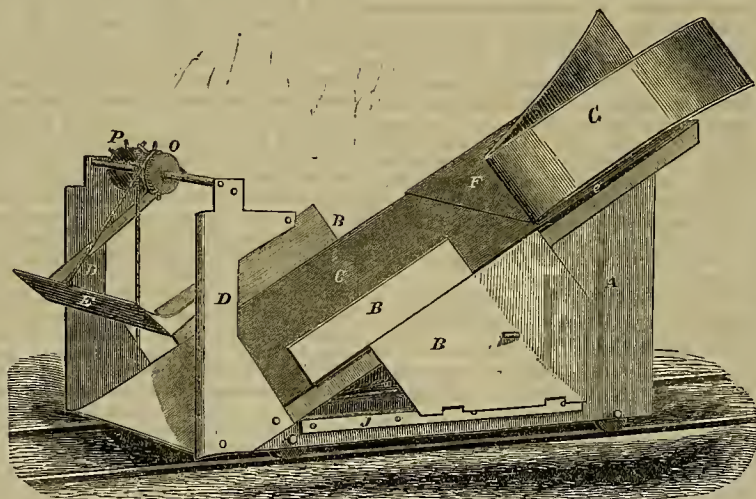
THE NEW UNIVERSITY REGENTS.—Gov. Haight has appointed the following gentlemen as Regents of the new University: S. B. McKee, Judge of the Third District; Lawrence Arthur, Judge of Santa Clara County; Rev. Horatio Stebbins, John T. Doyle, John W. Dwinelle, and Richard P. Hammond, of San Francisco; Dr. Samuel Merritt of Oakland; William Watt of Grass Valley.

The *ex-officio* Regents are as follows: H. H. Haight, Governor; William Holden, Lieutenant Governor; C. T. Ryland, Speaker; O. P. Fitzgerald, Superintendent of Public Instruction; A. S. Hallidie, President of the Mechanics' Institute in San Francisco; Charles F. Reed, President of the State Agricultural Society.

These Regents, numbering fourteen in all, are to elect eight others, so that the whole board will consist of twenty-two members, seven of whom constitute a working quorum. The organization will probably be completed in season for a transfer of the College of California at the next Commencement, which occurs in the first week of June. Hence there will be no necessary interruption of classes, and the work of education will go on with such modifications thereafter as may be required to conform to the University plan.

FROM LONDON TO CHINA AND JAPAN.—The distance from London to Shanghai, China, *via* the Isthmus of Suez, is 10,499 miles; from London *via* San Francisco, 8,355 miles;—making a difference in favor of the route through San Francisco of 2,144 miles. The distance from London to Yokohama, Japan, *via* the Isthmus of Suez, is 11,509 miles; while that *via* San Francisco it is but 7,520;—showing a difference in favor of San Francisco of 3,989 miles. The difference in point of time, when the Pacific Railroad is completed, will be *one month*. Nobody, who reflects upon these facts, can doubt for a moment that the great and growing tide of travel between Europe and the East Indies must eventually pass through San Francisco. A large amount of trade must also follow the same route; especially in the lighter and expensive articles of tea and silks. The value of this trade to London, alone, is now over \$50,000,000 annually, and is rapidly increasing. The chief port of the English tea trade is Liverpool, and not reckoned in the above. The trade of China and Japan will soon be ours, and cannot fail to do for us even more than it has done for England. It is impossible to over-estimate the value of this trade to this city and to the United States at large.

PROGRESS OF THE HOOSAC TUNNEL.—It appears from a Legislative report for 1867, that the progress for that year upon the Hoosac Tunnel, was more than double that of 1866; and the average monthly progress on the east heading, during the last half of the year, was 118 feet. The total number of men employed on the work is about 500. The cost up to January last was \$2,086,640.



ADAMS' IMPROVED RAILWAY SNOW-PLOW.

Cronise's New Work on California.

THE NATURAL WEALTH OF CALIFORNIA—Comprising its early history; geography, topography and scenery; climate; agricultural and commercial products; geology, zoology and botany; mineralogy; mines and mining processes; manufactures; steamship lines, railroads and commerce; immigration, population and society; educational institutions and literature; together with a detailed description of each county, its topography, scenery, cities and towns, agricultural advantages, mineral resources and varied productions. By Titus F. Cronise. San Francisco: H. H. Bancroft & Co., 1868. Imperial 8vo.—pp. 700.

The above title will give the reader a very correct idea of the plan and scope of this new work, which forms a most valuable and important contribution to the literature of California. Its appearance is most opportune, as it furnishes just the information sought by the great multitudes from all parts of the world, whose attention is now so much absorbed in the thought of making California their future home. The work furnishes a full and complete treatise on the present industrial condition, the future prospects and the permanent resources of the State—subjects which are now exciting more interest, both at home and abroad, than ever before since the admission of California into the Union. To the newly arrived emigrant, to one casting longing glances at this coast from whatever part of the world, and to all inquiring minds everywhere, this book will prove a magazine replete with reliable information, collected at the expense of much time and most laborious research. It undoubtedly will, as it should, receive a wide circulation, both at home and abroad. The plan of the work is comprehensive, its style clear, and the facts upon which it treats are brought down to the latest dates. Of the 700 pages which it contains, 43 are devoted to agriculture, 68 to mining, 47 to manufactures, 260 to descriptions and statistics of counties, and 282 to miscellaneous matters relating to the State. The book has been brought out as a large royal octavo, beautifully printed and bound. The printing was done from stereotype plates made in this city from California type. Its editor is Mr. T. F. Cronise, one of the ablest commercial writers in this State. He has been assisted in its preparation by as able a corps of assistants as could be found on the coast. It is published by H. H. Bancroft, and is sold for \$6.50. We have already given some extended extracts from the proof sheets, which were kindly furnished us in advance of publication, and shall further draw from it, from time to time, as we may find space in our columns.

the other, as is often found necessary in passing along hillsides with the slope sometimes upon one side and sometimes upon the other. Of course these operations require either different plows, or one so constructed that it can be rapidly changed and modified to meet the constantly changing nature of the road to be cleared of the snow.

In order to accomplish this object, the inventor of the machine herewith illustrated constructs a frame of wood, and mounts it upon low wheels, so that the forward part of the machine will skim along just over the rails, while the rear portion can be made to stand at an angle which can be readily varied from forty to sixty degrees. The front of the machine is constructed with a flaring mouth, with upright side pieces, D, D, and provided with a honnet, or gate, E, which, when the machine has taken a load which it is necessary to "hack out" with,—as from a deep cut to a convenient place of deposit,—can be let down, so as to prevent the load from slipping back again upon the road. This honnet is readily raised or lowered by devices shown in the illustration at P, O.

In order to make a plow work successfully in deep snow, especially when it is

to show the side when drawn back, and thereby brought below the face of the floor of the incline C. The portion of the figure in light, shown at B, is intended to represent what should have been marked B'. By moving it still further forward, the sides may be made still higher.

G is a share or dash-board, placed upon a slide F, which may be shoved down over C to near the mouth of the plow, when the sides are thrown back to B'. Its point may be placed, as here shown upon the left hand side of the plow, when all the snow may be thrown to the right, or it may be placed *vice versa*; again it may be placed in the center and made to throw the snow both ways. When used for such purpose it is slid down to the front of the machine. It is also used to unload the plow in clearing out deep cuts by being forced down to crowd the snow off from either side of the frame. All this is accomplished by simple and readily manipulated devices, not fully shown in the illustration, but operated from the points P, O.

SEMI-CIVILIZED!—Among the five millions of people by whom Jeddo in Japan is inhabited, there is not a beggar in the streets, not a man unable to read, not a hoer, not a drunkard, not a ruffian.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

Amalgamation by the Admixture of Metals.

BY DR. L. LANSZWEERT.

ZINC PROCESS.

EDITORS MINING AND SCIENTIFIC PRESS:

In the series of my articles on the problem of gold and silver extraction, published in your valuable paper in 1865, remarks were made on the advantages derivable, in the process of amalgamation, from the admixture with the mercury, of various metals—such as copper, tin, zinc and lead; and a full description of the use of copper amalgam was published in the MINING AND SCIENTIFIC PRESS of Nov. 4, 1865.

Mr. d'Heureuse, in a note on the use of zinc with mercury, published in your paper, May 16, 1868, says that the action of zinc in increasing "the retentive efficiency of the mercury for gold and silver, may be attributed to the rough and barbed edges peculiar to the fracture of cast or semi-fluid zinc; similar to the state in which it appears in the amalgam." This explanation is somewhat incomprehensible, and lacks that clearness which should be expected from the patentee of a "zinc process" for extracting gold from its ores, to whom zinc reactions ought to be familiar. It is a peculiar and noted fact, that the amalgamation of zinc comprises two distinct phenomena;—the liquefaction of that metal by or mercury, and the formation of an alloy or amalgam—that is to say, of a well, chemically defined compound. The term alloy, in its most general acceptance, means the mutual combination of one of two or more metals. When one of the metals, however, entering into combination is mercury, the result is not usually termed an alloy; but an amalgam. All ores are practically interesting to the metallurgist in two ways,—either the metals to which a metallurgical process of extraction is applied are found in the condition of native alloy—i. e. one naturally existing; or an alloy results as the consequence of an intermediate metallurgical process. In putting in contact mercury with a solution of chloride of zinc, by electrolysis, an amalgam is obtained which, submitted to pressure, gives a combination, crystalline in form, of one equivalent of mercury to three of zinc.

How to obtain this crystalline form with the homoeopathic dose of Mr. d'Heureuse's formula, one ounce or less of zinc, for ten pounds of quicksilver, is a mystery to me. I doubt very much the beneficial effect of zinc amalgam in the reduction of gold ores. The results obtained from my experiments in that direction, have uniformly corroborated my statement that, for the reduction of gold ores, mercury cannot be too pure. The presence of foreign metals alloyed with the gold in a large percentage, as is the case in quartz from most of the lodes, will occasion loss, and much embarrassment in amalgamating; but zinc will only improve the action of quicksilver in the reduction of silver ores; and that of a certain class, especially chloride and bromide,—copper having a greater affinity for sulphur, than zinc, lead or tin, should, for this reason, be substituted whenever the ores to be reduced are mostly sulphides. Zinc is used in Mexico for the reduction of silver ores, only—not for gold. The addition of copper, lead, tin or zinc, to the quicksilver, is to obtain a more electro-chemical action on the reductive salts or magistral, used for the precipitation of silver, and reduce the loss of quicksilver. The proportion of these metals to be so used, is that necessary to effect the reductions—that is to say, a little more of one equivalent of these metals for each equivalent of silver to be precipitated. In the experiments made at the Guadalupe y Calvo Mine (Mexico), 33

to 35 parts of copper were used for 100 of silver precipitated. If, in place of copper, lead, tin or zinc is to be used, about the same amount as above will be found necessary; besides, the metal which is to replace the quicksilver, as reducing agent, must be in a very finely divided or minute state; without that, its action would be very tedious or incomplete. The simplest process to obtain these metals, thus divided, is to combine them with mercury, and thus make a liquid amalgam, easily disseminated through the mass. Hence I can hardly admit that zinc increases the retentive efficiency of the quicksilver, "by its rough and barbed edges."

If millmen, with a dollar's worth of zinc, will save pounds of gold and silver by this free process, what will they save by passing gold-bearing substances, reduced to a fine powder, without previous alloy, through melted zinc, by introducing said substances below the surface of the melted zinc, as per d'Heureuse's patent claim? The melting point of zinc being 707° Fah., and that of gold 2,015°, what effect can be produced or obtained by passing gold ores through melted zinc at 707°, which temperature cannot be increased, as the zinc would in such case pass off into vapor? Sometimes in the manufacture of brass, when the zinc is first melted and copper plunged into it, the formation of an alloy will immediately commence, without the fusion of the copper. Copper plates and rods are sometimes partially converted into brass, by exposing them, at a high temperature, to the vapor of volatilized zinc.

THE CALORIC WATER-ELEVATOR.—An interesting exhibition was recently given near the Old Colony Railroad station of a new invention called the "Caloric Water Elevator." It consists of two cylinders of about one thousand gallons, the upper one being filled as an air-chamber, the lower one for water. A locomotive was placed on the track near the machine, and steam let on from it into the air-tank. The pressure of the air upon the water, caused by the introduction of the steam, immediately forced the water out through an eight-inch pipe. Eight hundred gallons was discharged in a half minute. For raising water when steam is convenient, this apparatus can hardly have a competitor. As a safeguard against fire it is invaluable. It is a simple machine, attended with no expense after its first introduction, and takes the place upon railroads of all pumps, tank-houses, etc.—*Boston Evening Transcript*.

We presume the water elevator above referred to is the "Wilcox Water Lifter," which was illustrated in our issue of Dec. 21, 1867, and which attracted much attention at the late State Fair at Sacramento. These water-lifters are now being introduced on the line of the Central Pacific Railroad, in this State.

THE INVENTION OF VULCANIZED RUBBER. After long years of effort and disappointment, Charles Goodyear stood apparently as far as ever from the attainment of his object; until one day, while in earnest conversation regarding his proposed invention, he emphasized an assertion by flinging away at random a piece of rubber combined with sulphur that he held in his hand. The fragment falling upon the stove, was subjected to a higher heat than that to which he had ever ventured designedly to subject the material; and when it was recovered it was found to possess the qualities for which he had sought so long; cold did not harden and heat did not soften the water-proof and elastic mass. And thus sprang forth the germ of an invention that has built up a new branch of manufacturing industry, given employment to thousands of operatives, and added in myriad forms to the conveniences of life.—*American Artisan*.

MARINE PAINT.—The *Scientific American* notices a recently patented paint for ships' bottoms, which is thus described: "This paint is produced by the combination of a pasty mixture of white lead and hoiled linseed oil with about an equal portion of a pasty solution of caoutchouc, or gutta percha, and a sufficient quantity of hoiled linseed oil to reduce the paint to the desired working condition. The caoutchouc, or gutta percha, may be reduced to a pasty condition by the use of naphtha oil."

NEW FACT IN MAGNETISM.—M. Gerard has found that if a ring made of wire, the diameter of which varies regularly,—so that one side is very thin, and the other much thicker,—he suspended over an electro-magnet, it will revolve.

The Birmingham Lock Trade.

The following, from the *Engineer*, will be read with interest by the American artisan. He will instinctively contrast the picture here given of the English workman's condition, with a picture of his own drawing. We should add, however, that the remainder of the article, which we have not space for, speaks of the recent introduction of very complete machinery for lockmaking in Birmingham:

"As is well known, the lock trade is one of the most extensive in the neighborhood of Birmingham, or rather we should say of Wolverhampton, for the principal part of the production of these articles in the district gravitates towards the latter town; but the miserable condition of this trade, which is both a mechanical and social disgrace to the country, is not so generally understood. Common lockmaking in England is, perhaps, the only trade of which it can be said that no mechanical improvement has been introduced since its commencement; that the quality of the article produced has steadily deteriorated, and that although from the natural increase of consumption a proportionate increase in production has taken place, yet the wages of the work-people have continued miserably low, and fall during depressions in trade to a pittance which barely affords existence. The chief cause of this state of things is to be found in the system on which the trade is carried on. It has been the custom from time immemorial for the lockmaker to work at home, buying weekly by retail the small quantity of iron required for his week's work, and selling the finished article, if finished it can ever be called, on Saturday, to some one of a clique of factors who practically can dictate their own terms, and often give a price scarcely more than covering the value of the iron in the few dozen locks brought in by the workman. To those who know little of this trade a word or two of explanation will be necessary in order to show how completely this dictation of price is in the hands of a kind of middlemen, who are neither manufacturers nor merchants in the true sense of the term. It might be supposed that, from the very fact of each man's house being his factory, and of his being able to dispose of, or to hold over the fruit of his labor at the end of each week, he would occupy a more independent position than that of most other artisans; but in fact the very reverse is the case, for in order to live he must not only realize something, however small, for his labor, but is bound above all things to recoup his capital every Saturday in order that he may have wherewithal to begin work on Monday. In fact he labors under all the disadvantages of the most embarrassing form in which labor and capital can be combined, if the latter term be not, indeed, out of place in this instance.

The lock factor thoroughly appreciates this condition of affairs. Whilst the maker has perhaps forty or fifty factors to whom he may take his wares, the factor knows that there are many thousands of workmen, a regular proportion of whom must come to his particular net every Saturday with locks that must be exchanged for coin from dire necessity. The result of this state of things is that not only have wages sunk to something like the miserable price paid for shirt making before the introduction of the sewing machine, but the quality of the locks has of course deteriorated, till they are now about the greatest rubbish that it is possible to conceive. Some classes of padlocks are sold as low as 6½d. a dozen. It is needless to say that they are utterly worthless, except perhaps for the purpose for which some African chiefs employ them, viz., the ornamentation of their noses. Any old nail or scrap of wire will open them, but of all other instruments the key which is sold with them is usually found to be the most inappropriate for that purpose. In one or two instances something like lock factories have been established, in which the owner employs a number of workmen by the piece, and finds the material himself. This is a step in the right direction, but one which has been so triflingly followed as scarcely at all to affect the present pernicious mode of working the trade. Whilst matters are in this state in Staffordshire, the Americans have shot ahead of us considerably, both in the quality of their locks and in the comparative cheapness of those which are really good articles. The partial introduction of machinery and the consequent accuracy and interchangeability of parts have placed American lockmakers on a much higher footing than our own, and although they labor under the disadvantage of being obliged to employ handwork in many of the details, they have made considerable

strides in advance of the English lock-maker. The introduction of machinery for the formation of every individual part is all but essential, if machinery be adopted for the formation of any of the parts; for machine accuracy in one set of the pieces composing a lock, demands equal accuracy in all the other portions, which it is impossible to attain cheaply by hand finishing."

The First Locomotives.

The rail was invented more than a century before the steam carriage, yet, singularly enough, the contrivers of the first locomotive did not think of using it on a railway. James Watt has recorded that, in 1759, his friend, Dr. Robinson, who was then a student at Glasgow College, suggested that the steam carriage might be employed in moving wheeled carriages on the highways. Watt does not seem to have acted on the hint until the year 1784, when he took out a patent for an adaptation of the steam engine to the propulsion of land carriages. He apparently had not much hope that anything could be achieved by such a contrivance, for he stated that "a carriage for two persons might be moved with a cylinder of seven inches in diameter when the piston had a stroke of one foot, and made sixty strokes in a minute." So little did he regard his invention, and so averse was he to the use of high pressure steam, that he never built a steam carriage; but his friend and assistant, Mr. William Murdoch, constructed, in 1784, a working model of a machine, which, though only fifteen inches in length, attained a speed of six or eight miles an hour. This was the first locomotive in Britain, and it is preserved in the Patent Museum. In 1802, Messrs. Trevithick and Vivian, of Camborne, in Cornwall, patented a steam carriage for common roads, and two years afterwards they constructed a locomotive for the Merthyr Tydvil railway. This was the first steam engine applied to locomotive purposes in Britain, and the leading features of it were essentially the same as those of the railway engines of the present time. For twenty years after, however, little progress was made in working out or extending the use of steam engines on the railways. A number of machines had been devised; but one after the other they were set aside. In 1814, George Stephenson made a locomotive for the Killingworth Colliery railway. It could draw thirty tons at the rate of four miles an hour, and was regarded as a great step in advance. An engine of the same kind was used on the Stockton and Darlington railway, opened in 1825, and of which Stephenson was engineer. This engine may be seen at Darlington Station, where it has been set upon a pedestal. The number of rods and cranks about the machine give it a complicated appearance, and it looks odd in contrast with the engines that have superseded it. When the Manchester and Liverpool railway was being constructed, in the years 1826-9, so little was known either as to the capabilities of railways or the most advantageous mode of working them, that the directors and engineers had some difficulty in deciding whether the line should be wrought by fixed engines or by locomotives. It was ultimately decided to use locomotives, and the directors offered a premium of £500 for the best locomotive that could be produced in accordance with the following conditions: "That the chimney should emit no smoke; that the engine should be on springs; that it should not weigh more than six tons, or four tons and a half if it had only four wheels; that it should be able to draw three times its own weight, and not cost more than £500." Four engines were entered to compete for the prize, and the trial of these, on the 15th of September, 1830, was one of the most interesting incidents in the history of railways. George Stephenson's "Rocket" won the day. It drew three times its own weight, or twelve tons fifteen cwt., at an average speed of fourteen miles an hour, and obtained a maximum velocity of twenty-nine miles an hour.—*Scotsman*.

THE WORK GOES ON.—There is a force of 450 men on the western end of the Western Pacific Railroad. About fifty of these men are engaged in cutting the tunnel in the Livermore Mountain, which, when completed, will be some 1,400 feet in length. The number of hands will soon be increased to 600.—*Sacramento Bee*, May 13th.

"CHARITY begins at home." If you would save money, buy your shirts at the working "Women's Coöperative Union," and thus gladden other hearts and homes. The store is at No. 39 Second street.

Mechanical.

Puddling.

An article in the *Scotsman*, in description of the iron works of Messrs. Colville & Gray, Coatbridge, gives so graphic a picture of the "puddling" operation that we copy a portion of it. Most of the severe labor here spoken of, is now done by recently introduced machinery.

In about a quarter of an hour after the furnace has been sealed, the iron shows signs of melting, and an aperture in the hearth door, about six inches square, is opened. The puddler, whose eyes seem to be proof against a light as dazzling as the sun at noon, looks in at the opening, and determines whether it is time to disturb the iron. So soon as he sees the finer angles of the iron begin to melt, he thrusts in a stout rod of malleable iron, and moves the lumps of metal about, so that the entire mass may be equally heated. If this were not done, the parts which melted first would be burned up and lost, and the quality of what remained deteriorated. The puddler's assistant takes a turn at this part of the work; and during its progress the heat is occasionally moderated by means of the damper, or by dashing small quantities of water upon the iron. At frequent intervals the puddling bar is withdrawn and cooled by being dipped into water. The iron dissolves gradually on the hearth, and after a time begins to heave and bubble, innumerable jets of flame hursting forth all over its surface. The desired chemical change is now going on. The hot air from the furnace sweeps over the iron and carries off a great part of the carbon, sulphur, phosphorus, and silicon contained in the pig iron. Care must be taken to prevent the metal from becoming too fluid; and as soon as it attains a pasty consistency, the heat is moderated. Meantime, the puddler uses his rod vigorously; and as the metal now begins to "dry," the labor of moving it about is increased. The metal at length seems to curdle and become granular. As it then ceases to give off carbonic oxide, the heat of the furnace is again raised, and the particles of metal begin to adhere together. From this point the chief puddler undertakes and completes the operation. As the metal agglutinates, it becomes very difficult to move. The puddler has to exert himself to the utmost; and he dare not relax his efforts for a single minute, else all the previous labor would be worse than lost. Though the perspiration trickles from his face and arms, and oozes through his scanty clothing, he must toil on. His eye is never removed from watching the contents of the furnace; and the expression of anxiety on his face indicates that the operation has reached a critical point. When the metal has attained a certain degree of consistency, the puddler divides it into five or six heaps. He then works each heap into a "ball" or "bloom." The door of the hearth is opened, and one after the other the balls are drawn with a large pair of tongs and dragged over the iron floor to the "shingling" hammer. As the balls are drawn from the furnace they have a spongy appearance, and slag and other impurities trickle from them. The operation we have described occupies, on the average, about two hours, and the quantity of unrefined pig iron required to make a ton of puddled iron may be stated at from 22 to 23 cwt.

SHAFTING.—The first thing examined by a thorough mechanic when he comes into a manufactory, is the shafting. A due regard to the proper hanging and proper care of the shafting, will save many dollars in the course of a year. The line must run true, the boxes must not wobble, there must be no rattling or grinding, the boxes must not exude oil at their ends. The building must be firm. In a rattle-trap with shrinking and springing walls and imperfect foundations, a line of shafting will not keep its place twenty-four hours; power is lost in consuming friction, and the machinery rapidly deteriorates. When the shafting is supported by brackets, these should be placed by a straight-edge and level; when by hangers, a chalk line should mark the center of each hanger or a line directly over the center of the shaft. The hangers or brackets should not be so far apart as to allow of sagging in the slightest degree; and should also be proportioned to the weight of the shaft. The above is condensed from the *Scientific American*.

CASTING STEEL UNDER PRESSURE.—Jas. Henderson sends the *Scientific American* the following extract from Antoine Galy-Cayal's U. S. patent, Feb. 19, 1867:

"It is well known that cast steel run into molds is subject to blister, and is otherwise porous, which defect reduces considerably its toughness. In order to give this metal its requisite tenacity, it is subsequently reheated and then rolled and hammered. As many articles, such as cannon, cannot be treated in this manner, I have devised to submit them to a high pressure while in a liquid state inclosed in their sand molds maintained in iron flasks. For this purpose, immediately after running a cannon, I cover hermetically the head by a metallic cap, by means of bolts or other devices attached to the flask. This cap is fitted in its center with a vertical pipe, and provided with a cock at its lower extremity, while its upper extremity is closed by a washer pressed with a bolt in such a manner as to act as a safety valve. Before attaching the cap at, supposing an inch from the surface of the liquid metal, I introduce in the vertical pipe, and between the cock and the washer a charge of about one-quarter of an ounce of gunpowder, in the proportion of eighty parts of saltpetre and twenty of charcoal, with no sulphur. On opening the cock this powder falls on the metal, ignites, and engenders about one-third of a cubic foot of gas at 1,400° Cent. These gases exert on the liquid metal a pressure which is transmitted through the entire mass, thereby condensing the same and expelling the blisters. The effect thus produced is equivalent to the pressure of a head of liquid metal ninety feet high, admitting that the capacity between the cap and the surface of the metal contains thirty cubic inches. By making the flasks sufficiently strong the charges of powder may be varied, so as to produce by its ignition a uniform and general pressure, which is preferable to the partial, irregular and momentary action of a hammer."

A UNIFORM SYSTEM OF SCREW THREADS. Theodore Zeller, Chief Engineer U. S. N., is the President of a Board of Engineers, appointed by the Secretary of the Navy to examine and report upon the various systems of screw threads in use by the principal manufacturing establishments in the United States, with the view of recommending a uniform system for general adoption. Chief Engineer Zeller has therefore issued circulars containing blank forms, to be filled out and returned to him at the Philadelphia Navy-yard, where the Board will meet. Particulars are requested in regard to the best form and angle of thread, in the opinion of each party, and also in reference to other points.

CONSUMPTION OF SMOKE.—A writer in the *London Mining Journal* for April 4th, after reviewing some of the various plans which have been devised for the prevention of the smoke nuisance, describes the plan upon which the new furnace of Mr. Allan, of Newcastle, is constructed. This furnace has a series of tortuous air passages above the furnace door, the external ends of which are fitted with an adjustable cover, to regulate the quantity of air required for different qualities of coal. The air in traversing these passages is heated to a temperature of about 50° or 60°. The result is the instantaneous conversion of the coal gas into flame. This is accompanied by a saving, in the quantity of coal consumed, and there being no movable mechanism, they are not in the least liable to derangement.

THE SIEMENS' FURNACE.—Mr. C. W. Siemens' regenerative furnaces, and also his more recently invented process for producing steel direct from the pig-metal, are now being applied in France on a most extensive scale, at the works of Messrs. De Wendel & Co., in the department of the Moselle. There will be, in all, 248 producers. Each producer converts into gas two tons of fuel every twenty-four hours, so that the total consumption will be nearly 600 tons per day. The work would require 1,000 tons per day under the present system, so that there will be a saving of 400 tons per day by the gas furnaces, besides an even more important saving in the iron itself. Careful experiments have proved, that where the Siemens' furnace is used, the wasting of the iron is reduced three per cent.; and in the case of which we are speaking, the saving thus effected will amount to about 70 tons of iron per day. — *Engineering*.

Scientific Miscellany.

CARBOLIC ACID IN TANNING.—Prof. H. Dussance, who has been experimenting upon the use of carbohc acid in the tanning of leather, communicates the conclusions arrived at to the *American Artisan*, as follows:

1. Tanning rats, with the addition of carbohc acid, can be left any length of time to the air without destruction of the tanning properties of their contents.
2. The tannin being present all the time in its pure state, less bark is required.
3. Vats prepared with bark moistened with water and carbohc acid keep their strength until all the tannin is combined.
4. Extracts prepared with it will keep without destruction of the tannin.
5. Leather tanned in such baths acquires imputrescible properties, and can be kept in damp places without alteration.
6. The bad smell generally emitted in tanning, currying, gut-dressing, etc., shops, is avoided, and the use of this acid is preferable to chloride of lime, this latter emitting a strong odor generally very disagreeable.
7. Leather made by this process takes some of the properties of Russia leather.
8. The work can be pursued at any time of the year; putrefaction being avoided.
8. One-eighth of the quantity of bark can be saved, and the time of tanning can be reduced at least to one-sixth.

Prof. D. prepares pure carbohc acid from the heavy oil resulting from the distillation of coal-tar, that is, the oil boiling between 302° and 304°. This is treated with an excess of caustic soda, heated and left to settle. The clear liquid is a concentrated carbolate of soda. It is decanted, dissolved in five or six times its volume of hot water, well stirred, and left to cool. The clear part is drawn off, and a little excess of hydrochloric or sulphuric acid added to it. The carbohc acid separates, and swims on the surface of the liquor. It is decanted and washed with cold water; and is then ready for use. A simple method of preparing it for tanners' use is to put a barrel of coal-tar from gas-works into a large hog-head, and fill it with lime water. Stir it well, and let it settle. Decant the clear liquid,—which may be used at once.

"UNIVERSOLOGY."—Mr. Stephen P. Andrews delivered a lecture at a recent meeting of the Polytechnic Association of the American Institute, upon the "Unity of the Sciences," or, as he called it, "Universology." As reported for the *American Artisan*, Mr. Andrews said that he here made the first formal announcement of the discovery of this new science, and he read from the introduction of a forthcoming work an elaborate statement of its domain and nature, and claimed that it held the same relation to the universe, as a whole, as that which any special science has held, in its own special domain. He said that from time to time during the past five years the public have been made aware, through partial announcements or intimations, that he was devoting himself to an unusual series of scientific and philosophic investigations which looked to the recouidite ground of unity between all the sciences. One of the branches of the discovery is said to be the basis of a new scientific universal language, which it is supposed by some persons will be ultimately the vernacular of the world. The introduction of the new work, which was read by Mr. Andrews, was made up of a series of papers written by several students of the new science, who had more or less mastered it, and now belong to an incipient university which the discovery has already been the means of organizing.

Some discussion followed the delivery of the lecture, and the curiosity of the audience seemed awakened, and exhibited a manifest desire to learn more of this new science.

NEW GALVANIC PILE.—Messieurs W. de la Rue and Hugo Muller have constructed a pile, which, although less than three inches high, is said to be extraordinarily powerful. The positive element is a zinc rod; the negative, a silver wire coated with chlorido of silver. A saturated solution of common salt is used for the exciting liquid.

THE "SUN-DEW."—L. A. Millington in the *American Naturalist* for April, calls the attention of botanists to a little plant, the *Drosera rotundifolia*, or sun-dew, which not only catches flies, but eats them. Its tiny leaves have red glandular hairs, each tipped with a drop of glutinous liquid. Any small insect which touches this is lost. Its struggles only farther entangle it. All the hairs then begin to move slowly towards it; and in a few hours touch and cover it with their glue. Mr. Millington experimented with some specimens by laying the bit of moss on which they grew, upon a plate of water. He fed them with insects and with beef-steak. He placed a piece of the last named on the center of a leaf. "In twelve hours," he says, "nearly every hair touched it. They gathered over it in knots and remained so for a day and a half, when they slowly returned to their natural position, leaving the beef a white sodden atom resting on the points of the hairs. I tried it with a bit of paper, but it refused to move for that; then a tiny fly was touched to one of the treacherous dew-drops, smothered, and in a few hours all the ferocious little scarlet hairs had their beaded points upon his body. When the blossom bud appeared, the glands no longer secreted the dew, and the leaves lost their brilliant color."

THE SECRET NOT YET DISCOVERED.—Prof. A. de la Rive, in a memoir of Faraday, translated from the *Bibliothèque Universelle*, for the *Philosophical Magazine* for December, makes the following remarks:

Since the discovery of the mechanical equivalent of heat, it seems as if everything had been said and everything were easily explained by means simply of a ponderable matter, an imponderable æther, and a mechanical impulse. Vulgarizers of science, more anxious to produce an effect than to remain faithful to scientific truth, proclaim a molecular system of the world destined to form a pendant to the *Mécanique Céleste* of Laplace. According to them, nothing is more simple, nothing clearer; attraction itself, which has been the object of the study of so many superior minds, is merely the effect of an impulse easy to understand. A dangerous illusion! No doubt science has entered upon a fertile course, but only on condition of advancing with sure and consequently with slow steps. We speak of the unity of force, and of the transformation of forces one into the other; but do we know what are forces? do we know their nature? We have certainly proved transformations of movement, and shown that one work may change into another work, mechanical motion into heat, and heat into mechanical motion; these are, without doubt, the most important points gained by science, and enable us to get a glimpse of the existence of a single cause manifesting itself in various forms. But it is a long way from this to the discovery of this cause, this single force. Shall we some day arrive at it?

PYROGALLIC ACID.—The old process for making this compound usually gives only 25 per cent. of the weight of gallic acid employed. Messrs. de Luynes and Esperandien, by the action of heated water, transform gallic into pyrogallie and carbon acid. Into a brass cauldron having a tightly-fitting cover they introduce gallic acid with two or three times its weight of water. The cauldron is then heated to 200° or 210° C., and that temperature is maintained for nearly two hours, when the solution of pyrogallie acid will be found slightly colored. The color is removed by bone-black and the water by distillation. A clear white product may be obtained at once by distilling the gallic solution *in vacuo*.

REDUCTION OF CARBONIC ACID TO OXALIC ACID.—Dr. E. Drechsel has achieved a triumph in synthetical chemistry by producing the oxalate of soda by means of carbonic acid. A mixture of pure sodium and dry sand is heated in a flask to about 350° C., over which a stream of dry carbonic acid is rapidly passed. After a few hours the metal becomes red and ultimately black. To avoid the reduction of the carbon, the heat should be moderated in the latter part of the operation, and the whole slowly cooled. Left in the air to oxidize, and then exhausted with water, about one-tenth of the mass is found to be oxalate of soda. In the same way oxalate of potassa may be obtained from an amalgam containing two per cent. of potassium.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, May 18, 1868.

Vice President Dr. James Blake in the Chair.

The Secretary being absent, Dr. Henry Gibbons, Jr., acted as such. Five propositions for membership were read. The attendance was somewhat smaller than usual. Dr. J. G. Cooper was elected Vice President, in place of Dr. Blake, who was chosen President at the previous meeting. Mr. Bloomer was proposed to fill the office of Director of the Museum, made vacant by the resignation of Mr. Stearns, who has gone East.

The Librarian laid before the Academy a large number of foreign scientific exchanges, embracing the proceedings of some of the leading scientific bodies of Europe, all of which will be added to the library.

Dr. Kellogg read a communication from E. W. Burr, accompanying a curious specimen of insect life, found only and recently on a single pine in Monterey, with a request that the Academy would examine and report upon the same. The insect appears to be increasing rapidly. The subject was referred to Dr. Behr for examination and report. Some discussion was also indulged in concerning the periodic development and disappearance of insects, and the transmission of predacious insects from one country to another. With reference to latter fact, the President mentioned an insect which was imported to England from America, against which nothing of great injury was known in this country, but which spread with wonderful rapidity all over England, and destroyed very many apple trees. It was known as the "American Blight."

Dr. Behr stated that the weevil was imported to this country in a cargo of grain from New Zealand. Until then, nothing was known of it.

Dr. Kellogg said that the Hessian fly was supposed to have been imported during the Hessian war.

Dr. Kellogg presented specimens of the Holly-leaved Cherry (indigenous) found in the neighborhood of San Francisco, and supposed till now to have become extinct; and a specimen of real *Prunus Virginiana* found on the Potrero, and commonly known as the Choke Cherry. The Dr. remarked that the Indian name of this tree is *Isleis*; and that the creek of that name, flowing through the southern portion of the city derived its name (given by the Indians) from the great numbers of this tree which formerly grew upon its banks and about its source.

Dr. Gibbons stated that the taste of both these cherry species cannot be distinguished from that of the Eastern wild cherry, the hydrocyanic odor being distinguishable in the blossom. Some discussion followed upon the question whether hydrocyanic (Prussic) acid exists in the cherry, peach and almond species, naturally, or whether it is a product of certain chemical changes; the latter is the opinion generally entertained by chemists. These changes take place after the plant or fruit has been macerated; a period of some twenty-four hours usually allowed for the fullest development of this acid. This accounts for the fact noticed that while cattle may eat freely and with impunity of the branches of the wild cherry, immediately after they have been removed; death or dangerous illness often follows when such branches are eaten after they have been lying for some time upon the ground in a mutilated condition.

Mr. Bloomer propounded the query whether a poison introduced into the cells of a plant would communicate itself from cell to cell, and permeate the whole plant. He instanced the case of an experiment by introducing strychnia into the cells of a cabbage leaf.

A member stated that there were but one or two substances which were capable of poisoning plants. There were several instances, however, of coloring matter permeating plants.

Dr. Gibbons claimed that there was a power of taste which enabled plants to select and avoid according to their necessity.

The President thought the spongy roots of the plant alone could exercise such discriminating power; that when these were severed, it became nothing more than a lifeless mass of capillary vessels, through which poison could have willing access. Dr. Behr stated that in the middle ages, persons were killed by eating plants watered with poisonous solutions with murderous purpose.

The Committee appointed to make arrangements for a course of public lectures was granted further time.

A proposition for a field meeting was left to the Council, who will announce the time for an excursion in the papers. The Academy then adjourned.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand, New and Important Inventions; also, the last of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

List of patents issued from the United States Patent Office for the Pacific Coast and Territories for the week ending April 28th, 1868:

77,157.—IMPROVED ANIMAL TRAP.—A. J. Adams, Portland, Oregon, assignor to self and Boyd P. Quincy, of same place.

77,163.—IMPROVEMENT IN THE MANUFACTURE OF BRICK.—Silas H. Bowman, Half Moon Bay, Cal.

77,183.—IMPROVED AMALGAMATOR.—Stephen Fountain, Silver City, Nev.

77,259.—IMPROVED APPARATUS FOR DISINTEGRATING ORES.—Jerome B. Cox, San Francisco, Cal.

77,273.—IMPROVED TRESTLE.—James E. Gedney, Petaluma, Cal.

77,297.—IMPROVED TIRE SHRINKER.—John Macy, of Pine Grove, Oregon.

77,343.—IMPROVED MEDICAL COMPOUND.—Robert Alexander, Eugene City, Oregon.

APPLICATION FOR REISSUE.

FRICION PAWL.—Joseph Moore, San Francisco, Cal. Patented May 7th, 1867. Application for reissue filed April 8th, 1868.

I claim the employment upon the main or counter-shaft of the windlass in hoisting apparatus of a pulley which shall be, on the one hand, under the control of a rake, and on the other hand be connected with the shaft by the pawl and ratchet device or its equivalent, substantially in the manner and for the purposes set forth.

PATENTS RECENTLY ISSUED.

71,707.—DENTAL SUBSTITUTE.—George W. Cool, Portland, Oregon:

I claim the mode of fastening the thin plate or lining to the vulcanite or other dental plate heretofore in use, in the manner above described.

The nature of this invention consists in lining the concave surface of a vulcanite plate with gold. The benefits accruing from such a metallic lining are enumerated by the inventor as follows: 1st, It makes a plate one-third thinner than the ordinary vulcanite plate twice as strong; 2d, It prevents the acid of the mouth from roughening the plate and turning it black, a common occurrence; most vulcanite plates turn black after being used a very short time, particularly in cases where tobacco is used for smoking; 3d, This style of plate admits of a finer finish than any other in use; 4th, The secretions of the mouth have not the same tendency to adhere to this plate that they have to the common vulcanite plate; 5th, Vulcanite being a non-conductor of heat, produces an unnatural warmth in the mouth, after inducing inflammation; while gold, being a good conductor of heat, when combined with vulcanite, has a tendency to keep the mouth cool, and prevents irritation.

We have carefully examined the above described invention, and have no hesitation in pronouncing it one of no ordinary merit; and one which we think must come into general use. We understand that quite a number of the leading dentists of this city have expressed themselves as much pleased with it. It has been introduced to some considerable extent in Oregon, where Mr. C. has heretofore resided. He has recently come to this city with the view of introducing it here; which being accomplished, he will go to New York for the same purpose. Dentists, and all others interested in any improvements in this direction, will do well to call upon Mr. Cool, at his rooms, 14 Third street, and examine specimens of this work.

76,587.—IMPROVEMENT IN GUN-LOCKS.—Salmon Belden and John Frankling Crabtree, Visalia, Cal.:

We claim 1. The lever F, having a short arm connected with the tumbler by a link and a long arm, to be held by the trigger, when at full cock, and released when the trigger is drawn for discharge, substantially as described.

2. The safety-catch, consisting of the lever n, spring p, and lever r, together with

the notch o, shoulder u, and the pin v, the whole combined and operating substantially as and for the purpose described.

The object of this invention is to provide an improved gun-lock, in which the following advantages are claimed over those hitherto constructed: First, greater simplicity of construction, with a very few parts, while the trigger, acting directly upon the hammer, will operate it quicker; second, an arrangement by which the lock may be used as an ordinary trigger, or may be converted into a hair-trigger for a rifle; and then, a safety-catch, of such a construction that it is impossible for the hammer to strike the cap on the nipple, without first fully cocking it, and then pulling the trigger. As the trigger acts directly upon the hammer, without the intervention of the sear and tumbler, its action is much quicker and more certain, while the whole lock has less friction of parts, and is much less liable to get out of order than any now in use.

76,778.—IMPROVED DRAIN AND WATER PIPES.—Wm. P. Kirkland, of San Francisco, Cal., assignor to himself, John L. Murphy and Edgar W. Murphy:

I claim, in the manufacture of drain and water pipes, the use of ropes, cords, or strands, dipped in a pitchy or tarry substance, and wound spirally or placed at right angles around a form, for the purpose of obtaining the desired shape and thickness of the pipe.

Also, the use of affiling of oakum or other fibrous material, placed under the strands or cords, substantially as described, for the purposes set forth.

The nature of this invention is to provide an improved drain and water pipe, combining strength with durability and cheapness. To accomplish this object, the inventor employs a series of strands or cords, loosely twisted, and places them in a tank or cauldron of boiling asphaltum or pitchy substance, and confines their ends to a cylinder or roller, suspended over the tank. These cords or strands are so attached to the cylinder or form, that in turning they will cross each other diagonally. Between each coil of rope he places a layer of oakum or hemp, and when a desired number of coils or layers has been wound upon the roller it is withdrawn, and the pipe is coated with the contents of the tank above described.

77,141.—IMPROVEMENT IN SEED SOWER AND HARROW ATTACHMENT TO GANG PLOWS. J. B. Webster, Stockton, Cal.:

I claim 1. The plow-frame a, a', b, provided with means for attaching a seeder to its front end, and provided also with the frame d, d', at its rear end, for the attachment of a seeder, substantially as described.

77,157.—IMPROVED ANIMAL TRAP.—A. J. Adams, Portland, Oregon, assignor to self and Boyd P. Quincy, of same place.

I claim the spring C, and claws K, in combination with the hinged treadles and the base A, E, all constructed, arranged, and operating substantially as described.

77,163.—IMPROVEMENT IN THE MANUFACTURE OF BRICK.—Silas H. Bowman, Half Moon Bay, Cal.:

I claim the use of petroleum and peat in the manufacture of bricks, by mixing both, or either one of them, with the clay of which bricks are to be made, substantially in the manner and for the purposes set forth.

The nature of this invention is the combination and mixing of combustible materials with the clay, employed in making bricks, so that the time ordinarily employed in burning, and the cost of fuel will be greatly reduced, while the substances incorporated will be consumed. Oil and peat or any similar substance may be used.

77,183.—IMPROVED AMALGAMATOR.—Stephen Fountain, Silver City, Nev.:

I claim casting the pan with a hub, having an opening through it for the shaft to pass through, and having a double wall around this opening, to form a steam-chamber for supplying heat to the machine, substantially as described.

The object of this invention is to provide an amalgamating pan with a steam chamber around its center, to be cast entire, and of one piece with the pan, which materially lessens the cost of construction, and avoids liability of leakage.

77,259.—IMPROVED APPARATUS FOR DISINTEGRATING ORES.—Jerome B. Cox, San Francisco, Cal.:

I claim disintegrating or reducing any gold bearing material by means of agitation

and friction with water, so as to permit of the separation of the gold from such disintegrated material by the ordinary means of sluice-box, amalgamation, etc.

77,273.—IMPROVED TRESTLE.—James E. Gedney, Petaluma, Cal.:

1. I claim the legs B, attached to the beam A, by means of the plates D, bolts E, and thumb-nuts F, as herein shown and described, and for the purposes set forth.

2. The combination of the beam A, extension legs C, legs B, removable plates D, having sockets d', and flanges for the passage of the bolts E, the bolts I, J, thumb-nuts K, L, and plates M, N, as herein described for the purpose specified.

3. Securing the extension legs C, to the legs B, by means of the bolts I and J, thumb-nuts K and L, and plates M and N, as herein shown and described, and for the purpose set forth.

77,297.—IMPROVED TIRE SHRINKER.—John Macy, Pine Grove, Oregon:

I claim the fixed bed B, provided with the fixed and adjustable clamps a, a', in combination with the sliding plate C, actuated by the cam-lever D, and the clamps G, G', fitted to the uprights E, E, F, F, when all said parts are constructed and arranged in the manner substantially as and for the purpose set forth.

77,343.—IMPROVED MEDICAL COMPOUND.—Robert Alexander, Eugene City, Oregon:

I claim the combination of the foregoing mixtures of medicines, to be used for the cure of cancer in the human system.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

CITY LAND HOMESTEAD ASSOCIATION.—May 18th. Capital stock, \$216,000; 2,400 shares, \$90 each. Trustees: Jos. Frontin, E. B. Clements and J. C. Duncan.

PACIFIC PUMP MANUFACTURING CO.—May 18th. Capital stock, \$500,000; 5,000 shares, \$100 each. Trustees: R. E. Brewster, E. J. Weeks, Chas. Hosmer and T. A. Mudge.

THE BADGER HILL AND CHEROKEE GRAVEL MINING CO.—May 20th. Capital stock, \$250,000; 2,500 shares, \$100 each. Trustees: J. B. Cook, Jno. McCarthy and Wm. Weight.

CALIFORNIA FUSE MANUFACTURING CO.—May 23d. Capital stock, \$50,000. Trustees: A. E. Davis, James Eya, Wm. Clift, Jos. Powling and Edward Northey.

The Nagle & Corcoran Mill Co. have filed an application to be reincorporated.

The Bacon M. & M. Co. have increased their capital stock to \$800,000.

The following articles of incorporation have been filed at the Secretary of States' office:

NEW YORK HILL QUARTZ MINING CO.—Capital stock, \$150,000; 1,500 shares, \$100 each. Trustees: J. K. Byrne, A. B. Brady, J. J. Sykes, Jno. Anderson and Reuben Leach.

UNIVERSITY HOMESTEAD, RAILROAD AND UNIVERSITY GARDEN CO.—Capital stock, \$120,000; 2,400 shares, \$50 each. Trustees: Samuel L. Theller, Jasper Bahcock, Thos. B. Lewis and Henry Vichier.

GARDEN CITY GOLD MINING CO.—Capital stock, \$200,000; 4,000 shares, \$50 each. Trustees: Albert Cramer, Albert S. Evers and O. D. Squires.

THE CONSOLIDATED VIRGINIA MINING CO. has increased its capital stock to \$3,480,000, to be divided into 11,600 shares.

U. S. FIRE EXTINGUISHER CO.—Messrs. Levey & Haley—Gentlemen:—We had the pleasure of seeing the successful working of your Fire Extinguisher last evening. A two-roomed house was erected, fully twenty feet in length, and both apartments were fired simultaneously; and when the whole building was one sheet of flame, almost instantly, on the application of the gas, the blaze was subdued, and, by the application of a few jets of liquid to the embers that remained in the interstices of the roof and walls, the whole was but a charred mass. We cheerfully recommend them for general use to all property owners, for in our opinion a fire cannot do much damage when these machines are properly applied.

A. H. JAYNE.
B. F. PENDLETON.
J. A. HOBART.
F. M. CAMPBELL.
D. G. BARNES.

Members of the Council of the City of Oakland. May 2, 1868.

SIXTY-FIVE HUNDRED TONS OF TEA.—It is estimated that 13,000,000 pounds of tea will be shipped to the United States this season from China.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board

SAN FRANCISCO SATURDAY MORNING,
May 24, 1888.

Financial.

Under the legitimate demand for business purposes and new enterprises our money market continues to exhibit a sustained activity. The supply is, however, quite equal to the demand, and no difficulty is experienced in meeting all wants. Discounts are readily effected at 1 1/4 per cent. per month, and call loans, on good collateral, at 1 per cent. The Savings Banks obtain 1 per cent. on loans repayable in installments, and on this basis their business is brisk. Mining shares, of even the best claims, are not considered very acceptable security at present, the market being altogether too fluctuating and unreliable. As a consequence, margins have been much widened. Our supply of bullion is rather light, and not quite equal to the demand. For steamer purposes on the 21st inst., Gold Bars ruled at \$90.50, and Silver Bars from 1/4 discount to 1/2 premium. There is a surplus of Silver coin to such an extent that it is at a discount of 1/4 per cent. Currency Bills on Atlantic cities are quotable at 37 1/2 per cent. premium on Gold; Sight Drafts, payable in coin, 1 per cent.; Telegraphic Transfers, 1 1/2; Sterling Exchange, 4 1/2; Commercial Exchange, 4 1/2. Mexican Dollars are worth 4 1/2 per cent. premium. In this connection we observe that the Hongkong mint has been discontinued on account of the annual loss sustained by that Government during its operations. This may have some ultimate effect on the price of Mexican dollars.

It is really astonishing that at a time when the nation is laboring under a cloud of debt, and financial men are racking their brains to discover the best way to get rid of the burden, and insurmountable political demagogues are advising repudiation, that the establishment of a Branch Mint at the Dalles, Oregon, should be seriously projected and determined. We venture to affirm that it will be impossible to collect thirty thousand ounces of gold at that place in the course of a year. It has evidently been got up in the interest of a small army of local politicians, who are to be supported at the expense of the Government. Such legislation can only be regarded as outrageous and unwarrantable. A rigid investigation into Government contracts in Oregon would also probably result in saving a few hundred thousand dollars yearly to the nation. We would strenuously call the attention of headquarters to this gentle hint.

The North American Steamship Company's steamer Oregonian, which sailed on the 20th for Panama, cost \$196,771 in silver bars, and gold shipment was made by her. Our largest treasure shipment this year was by the Pacific Mail Steamship Company's steamer Golden Age, which sailed on the 14th inst. with \$1,000,000. The Pacific Mail Company's steamer Sacramento sailed yesterday for Panama, carrying \$676,436.20, of which \$329,833.59 was in gold bars, \$133,256.63 in silver bars, and \$28,146.06 in coin.

The operations of our newly established Labor Exchange have been so far very satisfactory. A great many people have obtained work, and the wants of many requiring operatives have been filled through its instrumentality. Our farmers are complaining of the want of hands to take off the rapidly maturing crops, and if the hundreds of idlers in our streets really mean that they want to work, they can be accommodated by the Exchange.

City Stocks.

Sales have been small, the activity in the mining share market absorbing all the attention of stock dealers. Most large transactions of miscellaneous stocks are usually negotiated outside the board, as we have noted from time to time as transactions have come to our knowledge. During the past week, in the board, sales of Spring Valley Water Company stock have been made at \$59.50, and California Steam Navigation Company at 70 per cent. Insurance stocks are dull. It is rumored that a number of our local companies will soon take steps to disincorporate. A meeting of the stockholders of the San Francisco Insurance Company takes place this afternoon. A note from the President of the Builders' Insurance Company states that they are "paying two per cent. per month dividends on the stock." For quotations of miscellaneous stocks see third page of this circular.

The receipts of the local insurance companies during the month of April, and previously this year, according to the returns made to the Internal Revenue Department, have been as follows:

	April.	Previously this year.	Total.
Pacific.....	\$52,248	\$153,561	\$205,809
Union.....	37,111	103,402	140,513
National.....	69,436	109,934	179,370
Fireman's Fund.....	20,222	57,614	77,836
Builders'.....	18,844	53,329	72,173
California.....	12,596	33,395	45,991
Merchants' Mutual Marine.....	16,381	52,181	68,562
Occidental.....	1,303	16,028	17,331
Home Mutual.....	5,244	29,800	35,044
San Francisco.....	5,349	13,532	18,881
Peoples.....	1,061	20,073	21,134
Totals.....	\$220,061	\$674,940	\$894,001

The returns were made upon a legal tender basis, the rate 72 cents for January, 71 cents for February, 72 cents for March and 72 cents for April—being fixed every month by the Assessor of the district.

The above statement shows a decrease of \$1,093 as against the receipts in February. The receipts of the several companies in April, as compared with March, show the following difference:

	Increase.	Decrease.
Pacific.....	\$4,400	\$9,751
Union.....	17,104	2,935
National.....	1,628	900
Fireman's Fund.....	1,000	8,308
Builders'.....	1,000	1,250
California.....	1,000	69
Merchants' Mutual Marine.....	1,000	2,241
Occidental.....	1,000	
Home Mutual.....	1,000	
San Francisco.....	1,000	
Peoples.....	1,000	

The receipts of the city railroads for the month of April, and previously this year, have been as follows:

	April.	Previously this year.	Total.
Omnibus.....	\$23,343	\$67,393	\$90,736
North Beach & Mission.....	21,154	61,003	82,157
Central.....	12,853	37,329	50,182
Front Street, Mission & Ocean.....	8,411	22,323	30,734
Market Street.....	19,837	19,837	39,674
Potrero and Bay View.....	1,793	4,147	5,940
Totals.....	\$70,984	\$212,834	\$283,818

On the 22d inst., the Market Street Railroad had not yet reported for the month of April. The receipts of April as against March show the following difference:

	Increase.	Decrease.
Omnibus.....	\$834	
North Beach and Mission.....	87	
Central.....	314	
Front Street, Mission and Ocean.....	413	
Market Street.....	24	
Potrero and Bay View.....		

Mining Share Market.

Since our last issue the mining share market has been characterized by greatly increased activity. On the 18th inst., at the morning session of the board, a sudden break occurred, and the fall of prices throughout the list was very rapid and material. This sudden movement created a panic of no small moment, and the cry for increase of margin on time sales came like a dash upon speculative operators, while many suffered in no small degree by the collapse; however, the opportunity was availed of by the shrewd and calculating, who always argue that a sudden heavy depression is sure to be followed by a rally, and this transpired speedily, for in the afternoon board better prices obtained and so on the succeeding day, but since that time prices have been extremely fluctuating, and sales have been made at greatly reduced rates, bringing in free buyers at the decline.

SAVAGE—sold to a very large extent, falling from \$147 to \$117, rose to \$151, and closed at \$145. During the week ending May 16th 1,402 tons of ore were extracted, showing an approximate value of \$48 31 per ton, of which amount \$79 tons came from the south mine on the 4th level. There is a material improvement in the south mine on the fourth station, and in the north mine on the same level they are getting more ore as they raise up. The Gould & Curry Co., having drained the mine below this level, prospecting will be resumed towards the north level. On the fifth station, in the south mine, the drift is in good ore, and the breasts from the foot of winzes from the fourth level are said to be looking better. The shaft is now 88 feet in depth below the fifth station, and next week they intend to put in timbers for the sixth station.

IMPERIAL—dropped from \$226 to \$187 50, and closed at \$207 50. During the temporary stoppage of the machinery for alterations, the force is employed in cleaning out, repairing and lagging drifts. The large body of water with which they have to contend is still the great drawback to any knowledge of the ledge. They expected to start the machinery last evening.

CROWN POINT—fell from \$118 50 to \$99, rallied to \$116, declined to \$103, and closed at \$110. In the cross-cut carried east from the south drift on the 800 level, at a distance of fourteen feet, reached clay. The main shaft was twelve feet in depth below the 800 level on the 21st inst. For May account the receipts of bullion to date aggregate \$71,222 67.

HALE & NONCHES—dropped from \$120 to \$97 50 under large sales, and closed at \$103. The drift from the 1,030 level is in about 125 feet. In going west at foot of winze from the 930 level, at a depth of fifty-five feet, four feet of fair ore have been recently developed, but water has interfered compelling them to stop work.

CHOLLAR—FOTOST—declined from \$227 50 to \$200, advanced to \$230, then sold at \$202, and closed at \$215. During the week ending May 15th, 760 tons were extracted—414 tons coming from the Blue Wing station, and 226 from the Belviders; work has been suspended in the latter. In the new shaft the sinking goes on slowly, running in hard rock. On the 19th, 139 tons of ore were shipped to three different mills.

KENTUCK—also sold at a recession, declining from \$430 to \$400, and closed yesterday at \$415. The receipts to date for May account foot up \$44,176. OREAN receded from \$170 to \$155, and closed at \$160. On the 19th inst., the new shaft was 248 feet in depth. During the week ending May 19th, put in three sets of timbers and lowered the pump twice. At present sinking is progressing more favorably.

OVERMAN—sold at variable prices, declining from \$100 to \$70, improving to \$86, falling again to \$70, and closing at \$80. As predicted by us last week, an assessment of \$20 per share was levied on the 18th inst. Since our last issue, \$7,500 in bullion came to hand. YELLOW JACKET dropped from \$1,200 to \$950, improved to \$1,150, fell again to \$950, and closed at \$1,040. We have nothing of importance from this mine. It is reported that recent developments look less promising.

AMADOR—sold at \$290 per share. The bullion returns for the current month so far aggregate about \$25,000. GOULD & CURRY dropped from \$450 to \$325, rallied to \$450, then sold at \$400, and closed at \$430. The shaft has been relieved of the accumulated water. LADY BRYAN declined from \$37 50 to \$25, and at the close sold at \$32.

CONSOLIDATED VIRGINIA—was in the market at \$150 per share. This claim is located between the Gould & Curry and Ophir, and embraces the California, 300; Central No. 2, 100; Kinney, 50; White & Murphy, 210, and Sides, 500 feet. Its capital stock (\$3,480,000) is divided into 11,500 shares of \$300 each.

EMPIRE—sold at \$230 @ 200, closing at \$215. BELCHER fell from \$325 to \$270, and closed at \$300. EXCHEQUER declined from \$52 to \$35, and closed at \$43.

The sales in the Board during the past week have been as follows: Regular sessions, \$2,205,205; open sessions, \$546,807—total, \$2,752,012.

BRAINS.—The brain of Cuvier, the noted naturalist, was, we believe, the heaviest which has been recorded. Its weight was 50 1/2 ozs. That of the recently assassinated D'Arcy McGee is said to have weighed 50 ounces.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pino.

CHINMEN are said to be buying up all the mining ground about Auburn.

By MAIL.—The Mining and Scientific Press will be sent by mail to any part of the civilized world. In case of removal subscribers have only to inform us of the post office address of their old and new location, and the paper will be sent accordingly.

MINING SHAREHOLDERS' DIRECTORY.

(Compiled for every issue, from advertisements in the Mining and Scientific Press and other San Francisco Journals.)

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY	DAY
	DELINQUENT.	OF SALE.
Adriatic, Storey Co., Nev., May 20, \$1.....	June 12—July 15	
Adella, Sierra Co., May 13, \$1.....	June 19—July 15	
Amador Co., dividend, \$50 per share.....	May 26—June 2	
American.....	Meeting, May 26	
Bacon M. & N.....	Annual Meeting June 2	
Chiloneca, Mexico, May 11, \$5.....	June 12—July 6	
Cherokee Flat, Butte Co., April 23, \$5.....	Annual Meeting June 2	
Chick M., Nevada co., March 15, \$1.50.....	May 12—July 6	
Dancy, Lyon co., Nev., April 2, \$3.....	May 6—May 25	
Empire M. & N., Nev., dividend \$5.....	Payable May 15	
Empire M. & N. Co., Nevada.....	Special Meeting, June 2	
Flora Glazier, Plumas co., May 8, \$5.....	June 25—July 15	
Folsom S. L. & Fort P. R., R., April 25, \$5.....	May 26—June 11	
Green, Lyon co., Nev., May 13, \$1.....	June 24—July 9	
Golden Rule, Tuolumne co., div. \$50 per sh.....	Payable Feb 26	
Gold Hill Q & M—dividend, \$7.50.....	Payable Dec 16	
Hopo Gravel, Nevada co., May 7, \$1.....	June 10—June 29	
I X L, Alpine co., May 4, \$1.50.....	June 13—July 1	
Juila, Storey co., Nev., April 23, \$2.50.....	May 28—June 16	
Kentuck, div., \$5 per share.....	Payable March 14	
Lady Bryan, Storey co., Nev., May 2, \$10, payable monthly.....	Meeting, May 27	
Lady Bryan, Storey co., Nev.....	Meeting, May 27	
Lyon M. & N., El Dorado co., April 21, \$5.....	May 27—June 15	
North Star.....	Special Meeting, May 26	
Neutra Senora, Mexico, March 27, \$1.00.....	April 28—May 6	
N. A. Wood Preserving Co., Feb. 23, \$2.50.....	April 9—April 28	
Overman, Storey co., Nev., May 18, \$21.....	June 22—July 1	
Old Colony, Lander co., Nev., May 12, \$5.....	June 2—July 6	
Patrolina and Dolores, Mex., April 15, \$2.....	May 18—June 6	
Phila. Sides El Dorado co., April 14, 25c.....	May 25—June 6	
Rogers, Storey co., Nev., May 14, \$1.....	June 16—July 6	
Rattieshake, Yuba co., April 28, \$2.....	May 29—June 15	
Segregated Belcher, Storey co., May 15, \$6.....	June 29—July 10	
S. F. Moss Ledge, Arizona, May 2, \$20.....	June 5—June 22	
Santiago, Silver City, dividend.....	Payable May 8	
Santon, Amador Co., April 27, \$16.00.....	June 5—June 30	
Sierra Nevada, Storey co., Nev., April 14, \$10.....	May 19—June 6	
Savage, Virginia, Nev., dividend.....	Payable April 15	
United States, Storey co., Nev., April 11, \$3.....	May 21—June 9	
Virginia & O. L. Water Co.....	Dividend, payable May 15	
Whitman, Lyon co., Nev., May 21, \$10.....	June 24—July 15	
Whitman, Lyon co., Nev.....	Annual Meeting, June 24	

Those marked with an asterisk () are advertised in this journal.

Latest Stock Prices Bid and Asked.

A. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, May 22, 1888.	
MICKELANDER'S STOCKS.	Per Cent.
United States 7 1/2 Bonds, June Issue.....	107 1/2
Legal Tender Notes.....	111 1/2
California State Bonds, 7s, 1887.....	95
San Francisco City Bonds, 8s, 1885.....	102 1/2
San Francisco City and County Bonds, 8s, 1888.....	84
San Francisco City and Co. Sch'l Bds, 7s, 1886.....	82 1/2
San Francisco City and Co. Bonds, 7s, 1886.....	81
San Francisco City and Co. Bonds, 7s, 1884.....	80 85
San Francisco City and Co. Bonds, 7s, 1883.....	84 85
San Francisco City and Co. Bonds, 7s, 1883.....	84 85 1/2
San Francisco City and Co. Bonds, 7s, 1883.....	84 85 1/2
Sacramento City Bonds, 6s.....	21 27
Sacramento County Bonds, 6s.....	68 70
Marysville Bonds, 10s.....	75 85
Stockton City Bonds, 6s.....	75 85
Yuba County Bonds, 10s.....	75 85
Santa Clara County Bonds, 7s.....	78 82
Butte County Bonds, 10s, 1880.....	10 75
San Mateo County Bonds, 7s, 1880.....	10 75
California Steam Navigation Co.....	70 71
Spring Valley Water Co.....	68 1/2 67 1/2
State Telegraph Co.....	25 30

GAS COMPANIES.	
San Francisco Gas Co.....	82 1/2 83
Sacramento Gas Co.....	30 —
RAILROADS.	
Sacramento Valley Railroad.....	40 45
San Francisco and Ocean View Railroad.....	40 45
Omnibus Railroad.....	64 68
Central Railroad.....	69 65
North Beach and Mission Railroad.....	62 1/2 64
Front Street, Mission and Ocean Railroad.....	11 12

BANKING INSTITUTIONS.	
California Loan and Savings Society.....	80 —
Bank of Pacific Commercial and Loan Society.....	157 153
The Bank of California.....	70 75

INSURANCE COMPANIES.	
Fireman's Fund Insurance Co.....	85 86
Pacific Insurance Co.....	118 122
San Francisco Insurance Co.....	100 104
Merchants' Mutual Marine Insurance Co.....	489 483
Union Insurance Co.....	56 50
California Home Insurance Co.....	— —
Home Mutual Insurance Co.....	9 10
National Insurance Co.....	72 73

MINED STOCKS—WASHOE DISTRICT.	
Alpha.....	75 77 1/2
Baltimore American.....	305 310
Belcher.....	167 1/2 172 1/2
Bullion, G. H.....	55 67 1/2
Crown Point.....	107 1/2 110
Confidence.....	9 30 1/2
Chollar-Potosi.....	2 1/2 2 1/2
Ophir.....	16 18
Exchequer.....	42 1/2 45
Empire Mill and Mining Co.....	2 1/2 2 1/2
Gould & Curry.....	430 450
Gold Hill Quartz.....	110 112 1/2
Imperial.....	1 1/2 2 1/2
Itasca & Norcross.....	1 1/2 2 1/2
Kentuck.....	412 1/2 415
Lady Bryan.....	32 33
Ophir.....	80 82 1/2
Savage.....	145 147
Sierra Nevada.....	25 27 1/2
Yellow Jacket.....	10 11 1/2
Golden Rule, California.....	10 12

San Francisco Market Rates.

Wholesale Prices.	
FRIDAY, May 22, 1888.	
Flour, Extra, 48 lbs.....	\$5.50 @ \$5.70
Do, Superfine.....	5.50 @ 6.25
Corn Meal, 40 lbs.....	3.00 @ 3.50
Wheat, 48 lbs.....	2.05 @ 2.15
Oats, 48 lbs.....	2.25 @ 2.40
Barley, 48 lbs.....	1.75 @ 1.80
Beans, 48 lbs.....	2.50 @ 2.60
Potatoes, 48 lbs.....	75 @ 1.00
Hay, 48 lbs.....	12.00 @ 20.00
Live Oak Wood, 48 lbs.....	9.00 @ 10.00
Beef, extra, dressed, 48 lbs.....	11 @ 12
Sheep, on foot.....	3.00 @ 4.00
Hogs, on foot.....	6 @ 8
Hogs, dressed, 48 lbs.....	10 @ 12
GROCERIES, ETC.	
Sugar, crushed, 48 lbs.....	14 1/2 @ 15
Do, China, 48 lbs.....	10 @ 11 1/2
Coffee, Costa Rica, 48 lbs.....	16 1/2 @ 18 1/2
Do, Rio.....	65 @ 67
Tea, Japan, 48 lbs.....	65 @ 85
Do, Green.....	60 @ 125

Hawallah Rice, 48 lbs.....	8 @ 9
China Rice, 48 lbs.....	6 @ 6 1/2
Coal Oil, 48 gallons.....	57 1/2 @ 60
Butter, 48 lbs.....	16 @ 18 1/2
Eggs, 48 dozen.....	17 @ 20
Cheese, California, 48 lbs.....	21 @ 24
Eggs, 48 dozen.....	14 @ 15
Ham and Bacon, 48 lbs.....	12 @ 15
Shoulders, 48 lbs.....	8 @ 10

Retail Prices.

Butter, California, fresh, 48 lbs.....	35 @ 40
Do, pickled, 48 lbs.....	15 @ 25
Do, frozen, 48 lbs.....	10 @ 12
Do, New York, 48 lbs.....	35 @ 40
Cheese, 48 lbs.....	20 @ 25
Honey, 48 lbs.....	25 @ 30
Eggs, 48 dozen.....	14 @ 15
Lard, 48 lbs.....	15 @ 17 1/2
Ham and Bacon, 48 lbs.....	20 @ 25
Cracker, 48 lbs.....	1.00 @ 1.25
Potatoes, 48 lbs.....	2 @ 3
Potatoes, sweet, 48 lbs.....	1 @ 2
Tomatoes, 48 lbs.....	1 @ 2
Apples, No. 1, 48 lbs.....	4 @ 6
Pears, Table, 48 lbs.....	5 @ 7
Plums, dried, 48 lbs.....	11 @ 13
Peaches, dried, 48 lbs.....	10 @ 11
Oranges, 48 dozen.....	50 @ 55
Lemons, 48 dozen.....	50 @ 55
Apples, No. 2, 48 lbs.....	4 @ 6
Turkeys, 48 lbs.....	10 @ 12
Soap, Pale and G. O.....	7 @ 12
Salt, Castile, 48 lbs.....	16 @ 17

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.		FRIDAY, May 22, 1888.	
Inox.—Duty: Pig, \$9 per ton; Railroad, 60c @ 100 lbs; Bar, 1½ @ 1½; Sheet, polished, 3c @ 3c; common, 1½ @ 1½; Plate, 1½ @ 1½; Pipe, 1½ @ 1½; Galvanized, 2½ @ 2½.			
Scotch and English Pig Iron per ton.....	\$—	@	\$16 00
White Pig Iron.....		@	47 50
Refrined Bar, bad assortment, 48 lbs.....	02	@	—
Refrined Bar, good assortment, 48 lbs.....	02½	@	—
Sheet, No. 10 to 13.....	03½	@	—
Plate, No. 5 to 9.....	03½	@	04
Sheet, No. 10 to 13.....	03½	@	—
Sheet, No. 11 to 20.....	04	@	—
Sheet, No. 21 to 24.....	04	@	—
Correct—Duty: Sheathing, 3½ @ 3½; Pig and Bar, 2½ @ 2½.			
Sheathing, 48 lbs.....	30	@	52
Sheathing, 48 lbs.....	30	@	52
Sheathing, Old Yellow.....	21	@	22
Bolts.....	11	@	22
Bolts.....	21	@	22
Composition Lamps.....	21	@	22
Duty Plates.....			
Plates, Charcoal, 1X, 48 box.....	12 50	@	13 00
Plates, 1 C Charcoal.....	11 00	@	11 50
Roofing Plates.....	10 50	@	11 00
Flange Iron, Sills.....	10 50	@	11 00
STEEL—English Cast Steel, 48 lbs.....	10	@	12½
QUICKSILVER.—@ 60.....	55	@	60
LEAD.—Pig, 48 lbs.....	7½	@	8
Sheet.....	11	@	—
Pipe.....	11	@	—
Pipe.....	9	@	9½
ZINC.....	20	@	11
BOXES—California.....	20	@	—

Mining Summary.

Tax following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, May 9th: There is plenty of lower grade ore out at the I. X. L. The mine would now justify the erection of a small mill, there being ore enough in sight to keep it running.

The Merrimac Co. of New York, accept the proposition of the Winchester Co. to go into the Winchester tunnel and run it to the lode, thence drift along the lode to their own ground.

Amador County.

Ledger, May 16th: Phillip Seihenthaler's quartz mine above Volcano, is now down 50 ft., the vein $3\frac{1}{2}$ ft. wide, and the rock as rich as ever. Twenty-three tons from the top yielded \$1,040.

Mr. Langford, one of the owners of the Kennedy mine, has been contracting for the machinery for a 20-stamp mill. Contracts have been made, and the work will be under way in a few days. The engine is of 50 horse power.

Dispatch, 16th: The Amador Mining Co., at Sutter Creek, have purchased the quartz mill above the Eureka mine, from A. H. Rose, for \$10,000, and contemplate adding ten stamps more. They also will erect a 40-stamp mill on the site of the old Eureka mill.

Calaveras County.

San Andreas Register, May 16th: Pete Moro has opened a claim on the old Blue lead, near his own house, and is now at a depth of 10 or 12 ft., taking out some good paying dirt.

Kern County.

Havilah Courier, May 9th: The 10-stamp quartz mill of the Gold Hill Mining Co. at Sageland, was set in motion on Monday the 4th inst., and has been running smoothly ever since. This mill is crushing rock from the Gold Hill lead.

Capt. C. K. Hoteling is about to recommence operations on his mine, the Cherokee Dick, in the Pi-Ute district. Messrs. Stosser and Alexander of Watsonville, have lately purchased the one-sixth interest of Mr. I. M. Taylor, in the St. John mine and mill, for \$23,000.

We learn that a very rich quartz lode has been discovered in close proximity to the Long Tom Lode, by Joseph Woodworth, Esq., Superintendent, who has named it the Long Tom No. 2. The ledge is now being worked and is two ft. in width.

The 10-stamp mill of the Enterprise Co. commenced running April 10th. The Keystone State is the principal ledge of this company. Dr. G. W. Chase and others have several rich claims in the same district, Cottonwood, among which are the Relief and Sunbeam. We were shown about one dollar's worth of gold washed out from four pounds of the dirt found in the Relief lode.

Letter from Sageland: The St. John and Hortensia mines in the new El Dorado mining district, are the center of attraction here. A fine 12-stamp mill has now been running several months. The Burning Moscow, in the same district, is owned by Messrs. Hammel & Denker of Havilah. Their first run realized some \$1,300 from 52 tons of rock. A steam mill will soon be erected upon the Italian lead.

From the Watsonville *Pajaronian*, May 14: Mr. T. D. Alexander, Otto Stosser, Thomas Walker, and Mr. Taylor, returned to this place, on Tuesday, after an absence of about a month at their gold mine in Kern County. These gentlemen brought back with them the result of 23 days' work of a 12-stamp mill, in the shape of three bricks, worth in all \$11,000. [This is, we presume, the St. John mine above referred to.—Eps.]

Letter from White River to the Visalia *Delta*, May 13th: David B. James has rented the W. R. Co's mill and mine for one year, and proposes to commence getting out ore in a few days. Mr. Bullock is now at work on his claim on Grizzly Gulch. There are several other parties engaged in placer mining on Gordon and Rag Gulches, among which may be mentioned the Messrs. Perkins & Sewall, all I believe, making fair wages. Mr. Carter's mill, three miles west of the town, is not running at present, but will be as soon as repairs can be effected. They are taking out large quantities of good ore from the Sarah Campbell.

The Eclipse and other lodes, owned by A. S. Maltby, are well known.

About four miles south of this camp, at Eureka Flat, Messrs. Herholt & Marshall are finding 25-cent dirt. They are ground sluicing.

Mono County.

Dutch Flat Enquirer: We have just been shown a silver brick obtained from the Dozier Metallurgical Co's works, located at Benton, Mono Co., weighing some 38 ozs. The company expect shortly to be in condition to put up smelting works in the different districts where the common milling process has thus far proved a failure, with a guarantee of working the rock to within five per cent. of any correct assay yet obtained.

Nevada County.

Transcript May 12th: The claims along the Yuba are clear of water. Ashbough & Co., on the opposite side of the river, cleaned up a good round sum last week. The companies at Rocky Bar are at work with first rate prospects. At Mount Zion a prospect tunnel is being run. At Brandy Flat, the cement mines will be worked as soon as the Portuguese ditch is repaired. There is every prospect of a lively season.

The miners of Relief Hill are hard at work. Four companies are washing, one is prospecting, and another drifting. The Welch Co., after running 600 or 700 ft. into the hill, struck a channel of red gravel, five ft. deep, which yields from \$10 to \$12 to the car load. The Union Co. is working 20 men and running about 100 in. of water. They are washing in rich ground and will clean up this week. The Eagle Co. is washing with eight men, using 30 in. of water. They made a clean up last week, realizing considerably more than expenses. The What Cheer is working eight men, with 40 in. of water. The North Star is working 14 men, and running 40 in. of water, in good ground. The Welch Co. expect to get to washing about the 1st of July.

Same of 14th: The Norridgewalk mine started up on Monday last. They are pumping out the water preparatory to going to work upon the ledge.

Eshath & Co., opposite Washington, are working the old channel which runs into the Yuba opposite Washington. They are taking out big pay. A pan of dirt taken out from the bottom last week yielded \$85. The Eastern Co., on the same channel, are about starting up.

A contract has been let to take out 100 tons from the extension of the Sneath & Clay mine.

Same of 16th: The mining companies at Omega are all at work, with excellent prospects and abundance of water.

Gazette, 14th: John A. Emory and A. A. Mulloy, of this place, received yesterday a lease of the New York and Grass Valley Co's mill, (Sneath & Clay,) and will start it up on Monday as a custom mill. They have already over 300 tons of rock engaged. The mill is in excellent repair, has twelve stamps, and can crush from 16 to 20 tons per day.

From a gentleman from Washington we learn that the miners are going to work with a will. At Omega, there is plenty of work at \$3 per day for a least 40 more men.

Teams are hauling rock from Sigourney & Co's claims, near the Half Mile House, to the Oriental mill. About 100 tons of rock have been taken out, averaging over \$20 to the ton.

Same, 19th: The Jenson claim, at Scotch Flat, cleaned up 50 ozs. for 10 days' run yesterday. The South Yuba Co. adjoining, is working off a large amount of ground.

Excelsior.—Virginia *Enterprise*, May 14th: Mr. Chapellet, Supt. of the Mohawk and Montreal mine, says that the snow is still eight or ten ft. deep in Meadow Lake and about the same depth at the Mohawk and Montreal mine. At the Enterprise mine there was about six ft. of snow. The Enterprise Co. expect to start their mill about the 1st of June. They were packing in fire brick from Cisco with which to line their roasting furnaces. The Mohawk and Montreal Co. intend putting in five additional stamps, and will begin crushing their ores about the 15th of June. They have several hundred tons of ore ready for reduction.

Plumas County.

National, May 9th: The Lebanon Mill, Indian Valley, is running with closed doors, on account of difficulties arising out of disputed title to the property. The Whitney is quiet. The Crescent will be started in a few days. At the Indian Valley mills, we found everything in full blast. The Caledonia has not stopped a day since December. The company employ about 30 men in the mine and mill. The mine pays on an average about \$1,500 per week. The Fairchild Bros., at this mine, are working Pierson's steam process for amalgamating, with great success. Messrs. Jenkins & Kellogg's mill on North Cañon, near Round Valley, is in full operation. This mill is supplied with rock from their ledge at Cherokee, known as the Kittle ledge, of which the Caledonia is an extension. They

employ 30 men in their mine and mill, and crush about 25 tons of rock per day. Their last week's run yielded \$1,800. The mill pays, on an average, about \$6,000 per month.

Poorman's Creek correspondence of same: Gains & Winze are working seven men at present. They are well rigged, and will run day and night, when they get a little more water. Bradley & Rodgers have suspended for awhile; so have Tom Moores & Co. T. A. Turner is still hunting for the channel. Keely & Co. have been doing well all winter. Baird has been at work in the Wright ground, making but little. Ridel & Co. will commence ground sluicing soon, in the creek. The Blue Lead boys have commenced to work off their front gravel. It looks well. The Chinese Cos. are pitching in lively.

North Fork letter: The Dutch Hill Co. are ground sluicing day and night. Waggoner & Ferguson's water has failed. They took out big pay while it lasted. Nobody doing anything on Barker Hill. On Red Rock they are making the best possible use of the water, putting in full time. Everything quiet on the river.

Sierra County.

Yreka Union, May 9th: The Bay City Co. are bringing up a race to drain the lower portion of Indian Creek. They commence towards Scott River, and will tunnel for a long distance. This will make a large amount of mining ground workable that hitherto could not be worked for lack of drainage.

It is rumored that Hon. E. Steele has organized a company with a capital stock of \$200,000, for draining and working the lower portion of McAdams Creek.

Shasta County.

The Nevada *Gazette*, says: The Washington mill at French Gulch, cleaned up \$9,246.75 for April, leaving \$6,000 over expenses.

Yuba County.

Appeal, May 19th: A Brown's Valley correspondent writes us: The Rattlesnake—old Yuba—started up on the 6th inst. It is under the management of Mr. George H. Leland.

ARIZONA.

Prescott Miner, May 2d: The placer miners in Big Bug district, on Lynx Creek, the Hassayampa, and other localities in this vicinity, are making good wages. At the Vulture mine, near Wickenburg, a dry-washing machine has been in operation some time past. The machine is a success, and has panned out a great deal of gold. At Weaver, the Mexicans are said to be doing well. The Vulture Mining Co's 20-stamp mill which never stops, except for a short time every Sunday in order to clean-up, was, at latest dates from Wickenburg, pounding out plenty of gold. More machinery was being erected at the mill. Wickenburg's mill will soon be in running order. Both companies were getting very rich rock. Mining is being carried on extensively at Eureka and other points on the Colorado river. Ledges that were some years ago given up as "hard cases," are now producing gold and silver bullion. In the vicinity of La Paz, there are several rich ledges, upon which work is being done. Mr. Ravena's lode is said to be very rich. The copper mines, near Aubrey City, Williams' Fork, were, at latest dates, producing rich ore; but we fear that work will have to stop, owing to the hostile attitude of the Indians. We learn that the mine of Wm. H. Hardy, near Hardyville, on the Colorado, looks well. The Chase mill, six miles from Prescott, is nearly completed. Noyes & Curtiss expect to start it next week. Work upon the tunnel has commenced. We saw some of the Chase rock the other day, and it looked well. Kodick & Feland have started a new shaft on the Chase lode, out of which they are getting some very rich silver ore. Quartz mining in Big Bug and Walker's districts, is almost at a stand-still. In Turkey Creek district, a shaft is being sunk on the Gross lode.

COLORADO.

Denver News, April 29th: In California Gulch the Moyer lode has a three-foot crevice. A prospect at 40 ft. yielded four pwts. to the pan. The shaft on the Lake County lode is 25 feet deep, and the ore prospects one dollar to the pan. The Ida lode has not so wide a crevice. No work has yet been done in the gulch.

Mr. Chas. W. Lowe has sold to a Chicago company, claims from three to nineteen inclusive, in Fair Play Gulch, for \$15,000 cash.

Oro City correspondence: Prospecting is still prosecuted in Granite district with vigor, the number about Free Gold Hill is greater than at any time this season. Our greatest need here is a custom mill. An un-

limited amount of quartz can be raised, and the owners will pay liberal prices for working it.

Herald, April 29th: J. O. Stewart made a test run of 150 lbs. of Munsell ore, from which he obtained 52½ ozs. of silver, worth in coin \$70.87½. The cost was \$37.50, which leaves \$51.10. Mr. Miley has started the 8-stamp mill, North Clear Creek, on ore from the Bates or Hunter lode. We were shown 4 ozs. 5 pwts., the result of a clean-up from half a cord of ore from the Empire Co's claim on the Bates lode. Woodbury & Co. have hands at work putting 20 stamps into the old Eagle mill. The motive power will be water. Mr. John Boylan to-day started up the Gunnell Co's mill, Nevada Gulch, on ore from the Burroughs. The mill is in good repair. The Smith & Parmelee mine on the Gregory Extension, are now boasting ore. Gregory mill No. 1 started up 10 stamps yesterday, on ore for lessee of No. 11 Gregory. Mr. Peregrine is running two batteries, six stamps to each, on ore from No. 6, Running lode, Enterprise district. Gregory No. 1 stamp mill will be started up this week. Peter Rhu has his astras on Enreka Gulch running. He is working on mill tailings.

At Mill City, 200 tons of ore are lying at the mouth of the Snider Co's tunnel on the Albro lode. This tunnel is 200 ft. from the surface. The company has not yet developed its silver lodes sufficiently to make an estimate of their value. A run of 2,250 lbs. yielded \$219 coin value. Col. Hawkins has reached the Heron lode at 300 ft. from the surface. It looks well. The Lincoln Co. have reached 280 ft. from the surface. They have put up eight astras. The Piasaw Co., Mr. Reed, agent, have put up a large mill, in which will be used the Dodge crusher and astras. They have run a tunnel 200 ft. on the lode. Parties are fixing up the Copeland mill, putting in 10 astras.

Georgetown *Miner*, April 30th: Selected ore from the Nuckolls lode gave by assay, \$4,184.18 in silver coin, value to the ton. We understand that the ore vein in the east level, on the Brown lode, is now three ft. in width. The owners of the Terrible lode are building a wagon road from Brownville to their shaft. The Magnet lode, Griffith Mountain, is yielding some of the best ore we have ever seen in this district. The Clara Jane lode is being developed by an adit on the vein, showing two well defined walls, width of the crevice six ft., width of pay vein two ft., and by several assays rich in silver.

Register, April 30th: The Smith & Parmelee Co. have struck good ore in the Gregory side of their mine. Charles W. Mather is putting in an astras below the Cook & Kimball mill.

Last week, Bonzie & Co., Idaho, cleared up 15 ozs.—four men's work. On Saturday they struck a pocket better than ever, one pan from which yielded \$9.68. Meade & Blanchard got a little over 12 ozs. Theohold & Co. are getting seven pwts. per day to the hand. Cooper & Craven are sinking a shaft on the low bar opposite the mouth of Chicago Creek—have got down about 10 ft., and have encouraging indications.

DACOTAH.

Territorial Enterprise, May 7th: The Sweetwater fever in this region has died out. Of late we do not hear of the mines mentioned once in a week.

Colorado Register, April 30th: The excitement in the Sweetwater country about the vast gold mines in the Wind River and Big Horn valleys is said to be high. Parties arriving from the Sweetwater mines say the miners who struck those fabulous diggings have all returned to South Pass, disheartened.

IDAHO.

Owyhee *Avalanche*, May 2d: Geo. Collier Robbins is organizing a company to tunnel War Eagle Mountain, and already \$110,000 has been subscribed towards the enterprise by the chief mine and quartz mill owners, and business men in Owyhee. He will start for New York in a short time to complete the organization of the company. The tunnel will tap the mines at from 300 to 1,500 feet depth.

The Owyhee mill is running the full complement of 20 stamps day and night, and the company is prospering.

About 500 tons of Golden City Chariot rock is awaiting crushing at Sinker Creek mill.

Idaho *World*, May 6th: From G. W. Thatcher, and others from Centerville, we learn that an average season of mining was confidently expected about there. The water holds out better than was anticipated, and the mines pay exceedingly well. Water has been let into the diggings from the Ben. Wilson, Law & Waterman Big Ditch, and

times look lively and are prosperous in and about that camp.

MONTANA.

Helona Post, May 2d: Water is scarce. Two bedrock flumes have been put in Dry Gulch. Mr. O'Neil expected to take several thousand dollars this season, but will be unable to realize much with present prospects. The other flume was put in by a couple of Frenchmen, who have paid dirt 5 to 17 ft. in depth. In the upper part of the gulch several claims are being worked when water can be obtained. Butts & Co. sunk to the depth of 70 ft. through good pay dirt; bedrock not yet reached. In Tucker Gulch a hydraulic had been rigged up, but the scarcity of water has prevented its being used. In Big Indian, there is a better supply of water, yet the average has been only half a day since work commenced. All the claims worked are paying well. The owners of the Blue lode are sluicing into the hillsides. In Skylight Gulch, nothing is being done. There are some claims in the gulch which will pay from \$10 to \$20 a day to the man, with water.

Taylor, Thompson & Co. have started up their steam placer mining institution on claim No. 5 below discovery on Last Chance, and yesterday cleaned up over \$300 for a portion of a day's run.... Davis & Co.'s bedrock flume in Norwegian Gulch the first days' run cleaned up some \$23 to the land.... The last button from the Cable came last evening at six o'clock. Weight 418 ozs., value, \$7,842.... Noteware & Marshall have just finished a bedrock flume in Alder Gulch, near Elk Horn Bar and opposite Central, and commenced running.... Hayes & Williams, Bummer Dau Bar, opposite the city, are blasting through the bedrock in order to put in a set of sluices.... Mr. L. Bugher arrived from Phillipsburg last evening, reports work bravely going on, but deprecates the want of mills to crush ore. The St. L. & M. M. Co.'s mill was not running when he left.... Mr. Louis Bugher, of the Silver Hill Mining Co., recently made a successful experiment with ores from the Rumley-Bugher lode, in Flint Creek district. In a temporary experimenting pan, he run through about 400 lbs. of tailings with salt, and got 72 ozs. of silver, worth \$90 in currency.

Springville has about 300 miners in and about it. There are two mining districts, upper and lower Indian Creek, and some 1,000 claims recorded. The principal mining is done in Indian Creek and adjoining gulches. Six companies will soon begin operations. Maxwell & Co. are now at work with 40 in. of water, and cleaned up for three days with three men, \$650.

Deer Lodge items: Five bedrock flumes are in operation, or being put in, in Elk Creek, and owners are taking out from \$18 to \$40 per day to the hand. Water is plenty there. All the gulches tributary to Elk are yielding well.

Virginia items: A 5-oz. nugget has been found in Highland Gulch.... At Summit district the John Howe tunnel is progressing rapidly. It is now in 300 ft.... The Messler tunnel on the Butler lode, has been run 350 ft., and the workmen are now following a very rich streak some 12 inches in width. Workmen on the Keystone have taken out 300 or 400 tons of fine looking ore.... A 78-oz. gold brick is the latest from the Oro Cache.... The Sanderfer mill made a clean-up yesterday, 267.46 ozs., coin value, \$4,041.27.

Hot Spring district is paying \$10 per day. The gulch will give steady employment to a number during the summer. We learn that on Meadow Creek from \$7 to \$8 to the hand per day is being taken out.

Letter from Boulder Valley: In Peter and Boomerang Gulches, the claims, so far opened, establish the fact that they are good wages diggings.

Crow Creek mines: Radersburg, is the town of the Territory. The Leviathan is surprisingly rich. Five hundred dollars has been found in one panful of its rock, and some of the most beautiful free gold specimens ever found in the Territory. The crevice is from six to twelve inches, and a shaft is now being sunk for testing the lead. The Twilight paid \$40 to the ton in an astrak, until a depth of 20 ft. was attained, when the lead capped. The R. E. Lee has paid, on average rock, \$23.60 to the ton. Upon the Ohio, an incline 40 ft. in length has been run. It has panned out \$40 to the ton. The Keating lode has a shaft to the depth of 95 ft., and a tunnel 200 ft. in length, for draining.

Letter from Confederate Gulch: The Confederate Drain Ditch Co. is still going on with its work. In two months it is expected to reach the junction of Montana and Confederate Gulches.... On Boulder Bar, half a dozen claims are paying from \$10 to \$15 per day. A few claims are worked in the gulch.... In connection with

the great Boulder ditch, the company is constructing a bedrock flume in Montana Gulch, which is to be 780 ft. in length, 600 ft. of which is being paved with sheet iron. King & Gillette's flume is now 1,724 feet long. A ditch to fill it, 25 miles in length, from the head of Deep Creek, will be completed by fall. There are 200 laborers out of employment at Diamond City.

NEVADA.

Aurora Union, May 9th: Messrs. White and Greeley, as agents of the Bank of California, visited this place a few days ago, with a view of examining into the condition of the Del Monte and Antelope property, which have recently passed into their hands; also the Homestake property at Bodie. From remarks made by these gentlemen, we believe that the institution which they represent will, during the coming summer, prospect those mines.

It is probable that extensive reduction works will be erected at Castle Peak, 28 miles west of this place.

Territorial Enterprise, May 16th: Mr. Bourne, of Pino Grove, last evening brought in a gold brick weighing 34 lbs. avoirdupois, and worth about \$9,000, the result of a crushing of 240 tons of ore from the Midas mine, worked at the Pioneer mill.

The Wilson Co. are now engaged in taking out and crushing sulphure ore from the lower level of their mine. The last crushing yielded \$40 per ton. The mine looks exceedingly well. Reynolds & Co., who have a contract on the Central mine, are getting out ore, now being crushed, that will yield \$40 per ton. Palmer & Chevalier are working the Mountain View mine under a contract, and getting out ore that will pay about \$20 per ton.

The new 5 stamp mill of Abrams & Toombs, will start up next Monday. They have a contract on the Wilson mine, and have out between four and five hundred tons of ore.

Humboldt.

Register, May 16th: The Montezuma furnaces are in full blast. Mr. Likely, the foreman, tells us that this season he will cord up a mountain of bullion for the cars to haul to market. There are 500 tons of ore on hand, while the mine, to all appearance, is inexhaustible. There are many mines situated near the Humboldt river, and within a short distance of the line of the railroad, that will be worked by Mr. Nason's process of smelting.

The Arizona mine continues to improve in the shaft being sunk from the main level. The shaft is now down 60 feet, exposing a ledge at that depth of over three feet in thickness, of a very superior quality of ore. Gov. Fall is now working a large force of hands on the mine and mill. Business is improving and times look hopeful.

Independence Valley is a new mining field, 60 miles north of the Humboldt. There are now about 25 miners there, mostly engaged in placer mining, with considerable success. The gold obtained is worth about \$13 per ounce—is rather fine, and has the appearance of not having been long released from quartz. The day before he left, he saw three men take out \$100 from their claim. There are arrangements making, by a party from Austin, to put up a 10-stamp mill to work the ore of a ledge which they say will pay \$40 to the ton in gold, with ore enough above the surface of the ground to keep the mill running two years.

Pahranaagat.

Silver Bend Reporter, May 9th: We are informed by a gentleman from Logan, in the Pahranaagat section, that there is a party now at that place, engaged in testing the ores of that locality with a view to their reduction by smelting. The person making the test, has had large experience in the smelting business. Since his arrival he has made a great many tests upon a limited scale, and has met with success. He is now engaged in building a furnace capable of reducing a ton at a time. The furnace is a reverberatory, the ore is broken in small pieces, and with the flux is placed therein, and in four hours is reduced—producing a "cake" or "button" of bullion, and leaving as slag a mass of glass. The flux is known only to the operator, who says it is easily obtained all over the country, and costs but a trifle. But a small quantity of wood is used in the operation—about a cord and a half, we believe, to the ton of ore.

The mill of the Pahranaagat Valley Co. at Hiko, after a single run, has been compelled to stop for a while. The reason for this is, that the bricks of which the roasting furnaces were constructed, are made of unsuitable material and would not stand the required heat. This will be remedied soon, and the mill again started. About \$10,000

worth of bullion was the product of this run. The ore worked was from the surface and taken from several different mines, among which were the Indiana, Green Monster, Silver Chamber, and others.

Reese River.

Silver Bend Reporter, May 9th: From the back ledge of the Highbridge mine, the Combination Co. are at present taking out an immense amount of ore. There is estimated to be in sight near the surface a sufficient quantity to keep the mill at work for several months. The average yield of the ore which the mill is now reducing, both dry and wet, is \$100 per ton. Since our last issue, the Combination Co. has shipped bullion of the value of about \$10,000.

We have been informed that the Rutland mill at Reveille district has again been set in motion and is now at work. It is the intention of the owners to erect roasting furnaces.

Some remarkable developments have recently been made upon the El Dorado South. For 300 ft., the main portion of the ledge is composed of high grade chloride ore, working an average of near \$500 per ton. The depth reached upon this surface working is 15 ft., with no diminution in quantity or quality. In the incline at a depth of 125 ft. from the surface, a large body of wonderfully rich sulphure ore has also been disclosed, exceeding anything heretofore found in the mine. The company now have ready for the mill 200 tons of first class ore.

The Belmont Co. have been making some alterations about their mill, in consequence of which it has been idle for about 10 days. It will be in motion, probably, on Monday. At present there is a supply of ore at the mill from the back ledge of the Highbridge, and teams are constantly hauling more.

The new mill of Antonio Borgues, a half mile south of the El Dorado mine, will probably start up to-day. It has a battery of three stamps—to which two more are to be added soon—and will be used in reducing ore from the Arizona.

Another new mining region has been found, and named Sheridan district. The principal locations are respectively named Nevada Giant, 10 ft. wide; Potosi, six feet, and the Evans ledge, the two first named running parallel and cropping boldly for a distance of five miles. Along the immense croppings, at intervals, large ore chimneys occur of such magnitude that thousands of tons of rich ore are said to be revealed to sight. The ore assays from \$100 to \$300 per ton. The location of the new district is about 10 or 12 miles southwest of Penoyer's spring on the Pahranaagat road, and perhaps nearly 45 miles southeast of Reveille district.

The prospect now is that a company of English capitalists will soon have an agent at Manhattan who will commence extensive operations there. Mr. Bauer arrived here during the week and is now engaged in surveying timber lands, water privileges, etc., in the district for the benefit of the company. Mr. J. H. Boalt, a well known mining engineer, will shortly arrive and report upon the property.

Letter from Ophir Cañon: The present summer bids fair to eclipse any previous season. It is pretty well understood that a vigorous working of several mines will be carried shortly; the Antocrat, in this cañon, the Eclipse in Summit, and the Brown & Spiker in Wisconsin. The latter has been worked upon as steadily as the weather would permit for several months; an incline to a depth of 130 ft. is now completed which discloses a fine body of very rich ore.

The La Plata Co. will complete their mill at Park Cañon this season. I have it pretty direct that work will be resumed within a week or two.

Austin Reveille, May 12th: To-day some 2,000 ozs. of crude bullion arrived in the city from Rigby's mill at San Antonio.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial Enterprise, May 12th: The Imperial mill, Lower Gold Hill, has stopped for repairs. The machinery will be overhauled and the mill ready to run in a week.

The Sierra Nevada Co. are having another big plunger pump constructed. The bore of the pipe is 14 inches, and the pump rod will have 14 feet stroke.

Yesterday at noon the new Imperial-Empire shaft had been reduced to six or eight ft. below the floors of the drifts. Drifting will probably be resumed to-day.

Same of 14th: The cave in the United States shaft was not so great as stated. The cave occurred near the bottom of the shaft, and only about five tons slid in. The com-

pany will now properly timber the shaft. The rock is still soft.

Same of 15th: The Bullion Co. are now running a drift from the bottom of their main shaft, at a depth of 1,200 below the surface.

16th: From the office of Wells, Fargo & Co., in this city, there were shipped during the past week, 5,214 pounds of assayed bullion, valued at \$136,038.53; from the office of Wells, Fargo & Co., Gold Hill, 4,563 pounds, valued at \$128,243.42.

Trespass, 16th: Work in the Sierra Nevada shaft now progresses steadily and favorably, and this morning a depth of 72 ft. had been attained, without any obstacles to encounter in the way of water or hard rock.... The Ophir shaft is now 249 ft. in depth, with considerable water.... Pumping continues at the Gould & Curry mine, and doubtless will during the summer.... In the Savage, at the north, ore is not looking as well. At the south, there is a slight improvement.... In Chollar-Potosi, the incline is being sunk slowly, averaging about 3½ ft. daily.... Bullion is putting in a new set of reels.... In Imperial, the management of the new shaft continues unchanged, and is beset with misfortunes. Last night another cage accident occurred, and water was profuse in the drift this morning.... Cole has a very narrow but extremely rich vein of ore being drifted on with no apparent change.... The United States shaft is in promising quartz, and now down about 60 ft.... In Kentuck, the various levels of the mine are looking extremely well. In the shaft, considerable water has been encountered, but not enough to impede labor. The Crown Point mine is looking extraordinarily well, and the body of the ore south, lower level, has widened and improved in quality.... In Belcher, no change in the appearance of cross-cut at the 800-foot level.

NEW MEXICO.

A letter to the Star, dated April 1st, from Mr. Henry Monson, says of the Cimmaron mines: I have been here about two months and have not seen anything better than we have in Colorado. The snow has been from one to four feet deep ever since I came here. I think there are some good lodes here, or I would not remain a day. The great drawback here is the want of water. I don't like the country as well as I do the South Park, Colorado, and I think there is more snow here than there is there. Wages for good miners is \$1.50 per day.

OREGON.

Dalles Mountaineer, May 9th: Major Sanderson of Warren's camp, has been here on his way from the Atlantic States. He was taking with him a 5-stamp mill which would be put in operation as soon as it should arrive in the diggings.

The La Grande Times says that the quartz mining in Eagle Creek district is very prosperously conducted. The Humboldt Co. have a 10-stamp mill, and the La Grande Co. are putting up a mill of like capacity at Gem City, to be in working order July 1st.

WASHINGTON.

Olympia Transcript, May 2d: The party of prospectors to the Black Hills returned on last Saturday evening, and report nothing found to justify them in remaining longer. They found a little "color" in places, the same as can be panned out anywhere in the streams half a mile from Olympia, but not enough to pay to work.

THE LONDON TIMES PRINTING OFFICE.—

When a compositor applies for employment on the Times, he is tested, in a room by himself, upon a piece of Parliamentary debate "copy," which is usually written in a not over-legible style, in abbreviated long-hand. If the applicant can compose sixty lines of minion in a fairly workmanlike manner, without "donblets," "outs," wrong spellings, or a disproportionate number of literal or clerical errors, within two hours, his name is placed on a register of competent hands, and he may expect to be called in at the first opportunity. Once engaged, the permanency of his post depends upon himself. No applicant over thirty years is eligible, and if he fail upon trial to come up to the required standard of efficiency, he is paid for his sixty lines and dismissed—no one but the manager and himself being acquainted with the fact of his application. Men are encouraged in provident habits as soon as they attach themselves to the paper. Half a crown in the pound is deducted from the earnings of each regular compositor, pressman, machineman and warehouseman, which sum accumulates at interest during the whole period of his employment, and is given up to him on his retirement, and on no account before.—Bookseller.

"Antiquity of Man."

Canvassing Agents.

San Francisco:

Saturday Morning, May 23, 1868.

Notices to Correspondents.

VULCAN, JR.—The phenomena associated with the late volcanic eruption at the Sandwich Islands, are perfectly compatible with all former theories, which attributed such commotions to the influences exercised by a molten center. We look forward with considerable interest for further accounts, especially for well authenticated accounts, as to how the levels of molten matter stood in the craters of Mauna Loa and Kilanea before, at the time of and subsequent to, the recent outbreak.

Above these beds, rests a bed of peat about twenty-six feet thick. It has been supposed, by those who have heretofore given their opinion in regard to the antiquity of the remains, not only that the gravel beds were the gradual result of the almost imperceptible deposition from the stream which is still going on,—and that this formation must therefore have required ages,—but that the peat bed above must have occupied more than 20,000 years for its accumulation. But Prof. Andrews, by what seems incontrovertible reasoning, establishes the facts, first, that the river was once immensely larger than at the present time,—and second, that the deposition of gravel was, at least in places, extremely rapid. This is shown by the unmistakable evidence that blocks of ice, three or four feet in diameter, containing gravel, had been laid down in the strata and completely covered by other horizontal strata before they had time to melt. The sinking in and fracture of the stratum above, upon the subsequent melting of the ice, producing an arrangement not to be accounted for upon any other supposition, would alone prove this; but in further confirmation of it, he adds that the fragments of soft chalk gravel, which the ice brought with it, still retain their sharp angles and edges,—which would have been impossible if they had been rolled even a hundred feet in the bed of a stream. A further evidence of the agency of ice, is seen in the fact that boulders of sandstone are formed, some of which are large enough to weigh a ton. These must have been transported from far up the stream; for the rock in the vicinity is not of that character.

The deposition of the gravel beds, then, must have occupied much less time than has been estimated. In regard to the overlying peat, the estimate has been equally erroneous; being based upon the irrelevant fact that there has been no perceptible addition to its depth, "within the memory of the oldest inhabitant." M. Boucher de Perthes of Albeville, who has made most of the discoveries in this valley, therefore concludes that its average increase has not exceeded one and a half or two inches in a century. As the total thickness of the bed is, as we have said, about twenty-six feet, this would give it an age of, say, 20,000 years. Prof. Andrews shows the absurdity of this, from M. de Perthes' own facts; he having elsewhere stated that he has found, in this peat, trunks of larch and alder trees *in situ*, some three feet or more in height. Now it would take 2,500 years or so to cover such a stump at the rate given above as the average rate of deposition of the peat. But even an oak stump would not last a twentieth part of that time, much less one of birch or alder. Every trace of it would long before have disappeared. The deposition must therefore have been much more rapid than above supposed; for oak logs have been found in the peat, which were so sound that they were manufactured into furniture. The calculation of the average rate, based upon the present rate of deposition, is plainly erroneous, inasmuch as the peat beds of the Somme Valley belong to the class of forest peats, and that valley lost its forests centuries ago.

Prof. Andrews arrives at the conclusion, that the peat beds overlying the gravel deposits in which the remains were found, re-

quired, instead of 20,000 years, only about 6,000, for their formation.

The gravel cones at Villeneuve, on Lake Geneva, were also visited by Prof. Andrews. Morlot has assigned an age of 11,000 years to the lowest of these cones. Prof. A. makes it less than half of that; and points out a singular error in Morlot's data, which must necessarily vitiate his entire calculation. This error is the taking too small a unit of measure as the annual accretion of the cone,—assuming that the increase in depth has been from the commencement the same as now; whereas it is obvious that the total amount of earth brought down yearly by the torrent which has formed the cone, having of course been spread over its whole surface, must have added a thinner layer each year, as that surface grew larger. In addition to this extraordinary oversight, the calculations of Morlot in regard to the upper and larger cone,—for there are two,—are further vitiated by the assumption that the rate of deposition is the same in both, whereas there is ample proof, here as in the valley of the Somme, that the stream was formerly very much larger than at present; the rate of accretion must therefore have been more rapid, and consequently the time occupied in the formation of the upper cone proportionally shorter.

FAMILY ICE PRODUCERS.—Dr. J. A. Bauer, druggist, 644 Washington street, has shown us a neat, convenient and portable machine for making ice in small quantities. The apparatus is constructed of different sizes, capable of making from one to six or eight pounds at each operation. The smallest one does not occupy a space much larger than that filled by a gallon measure, and will not weigh more than three or four pounds. The refrigeratory process is exceedingly simple, and is produced by the mixture of equal parts of carbonate of soda and nitrate of ammonia, with water sufficient to dissolve them. The mixture of these ingredients produces a cold of great intensity, by which a solid cylinder of ice is obtained in from ten to twelve minutes. The cooling ingredients are placed in an outer chamber, surrounding a central one, in which the water to be frozen is placed. Both chambers are securely closed, and the machine revolved, end over end, in a convenient frame, which comprises a part of the apparatus, during the time required for the formation of the ice. We understand that a large number of these machines have been sold to private families and to persons going upon steamers, etc. Several have been taken down to the arid plains of Arizona, and the party which recently left this city on a visit to the volcano at the Sandwich Islands, supplied themselves with this convenient refrigerator. The cost of ice made in this manner, on a small scale, is from eighteen to twenty-five cents per pound.

BLASTING AT LIME POINT.—Our readers are aware that the Government is preparing a site for the fort to be erected at Lime Point. For this purpose it is necessary to remove a considerable portion of the hill at that place. On the 16th inst., a blast of 7,500 pounds of powder was fired. A tunnel had been run into the hill to the depth of sixty feet, and a drift thence at right angles for the same distance. A chamber was excavated at that point, in which was placed 4,000 pounds of powder; a wire having been connected with this, the drift was then filled up with dirt for forty-five feet, when 3,500 pounds more of powder was placed in another chamber. The whole tunnel was then filled up to its mouth.

The charges were simultaneously fired, by means of a magneto-electric machine. An eye-witness says that no noise was heard, but that "the whole face of the hill in front of the drift was seen to move outwards and fall into the sea." About eighty thousand tons of rock was displaced.

Volatility of Gold and Silver.

It has been long known to metallurgists, that both gold and silver are, under certain circumstances, to some extent volatile; but Napier has shown, as published in the *Quarterly Journal* of the Chemical Society, London, 1857, that when an alloy of these metals is kept in a state of fusion at a high temperature, they are very distinctly so. By collecting the metallic vapors escaping from a crucible containing from twenty-five to thirty pounds of melted alloy (gold coin), the results obtained in two instances were respectively as follows:

Vapor collected.	Pure <i>g</i> -Id in vapor.
grains	grains.
1—4.80	4.50
2—4.40	4.10

Deposits obtained from top, middle, and bottom of a chimney thirty-five feet in high, attached to a small furnace used for fusing an alloy of silver and copper (silver coin), gave the following results:

	<i>Top.</i> <i>per cent.</i>	<i>Middle.</i> <i>per cent.</i>	<i>Bottom.</i> <i>per cent.</i>
Metallie Silver.....	3.80	9.19	29.95
Oxide of Silver....	7.13	5.21	0.17

Deposits were also examined from the top, middle, and bottom of a chimney attached to a furnace in which an alloy of silver containing a considerable portion of gold was melted, with the following results :

	<i>Top.</i>	<i>Middle.</i>	<i>Bottom.</i>
Metallic Silver.....	29 380	39 160	48 750
Oxide of Silver.....	1.982	3 140	0.082
Gold	2 120	2.640	4.250

Makins has corroborated these results by experiments on deposits obtained from a flue attached to a muffle in which assays of an alloy of gold and silver had been made. In his experiments, according to a subsequent publication in the *Quarterly Journal* of the Chemical Society, 1,000 grains of this deposit gave—

Gold.....	0.087
Silver.....	0.763

The lead carried off in the form of fume, during the metallurgical treatment of argentiferous galena, is invariably found to contain a certain proportion of silver, but the lead resulting from its re-treatment is always much less rich in silver than that obtained directly from the ores.

The following results, obtained from samples of fume taken at different points along the course of a flue leading to the stack of a lead-smelting establishment, in which the work lead contained, on an average, twenty-six ounces of silver per ton, showing the relative volatility of the two metals when subjected to the heat of a Castilian furnace :

No.	FROM TOP OF FLUX.	Lead, per cent.	Silver per ton. of ore.
1	Near Castilian Furnace.....	49	2 9 0
2	" " " "	40	3 6 8
3	Near Reverberatory Furnace....	70	5 5 8
4	100 ft. in advance of No. 2.....	44	3 5 8
5	" " " "	48	2 17 0
6	" " " "	47	3 5 8
7	" " " "	46	3 5 8
8	" " " "	7	2 1 5
9	" " " "	42	3 6 8
10	Throat of Refinery.....	49	22 17 8

1	Near Castilian Furnace.....	53	2	9	0
2	" " " " " "	69	3	5	8
3	100 ft. in advance of No. 2.....	61	2	9	0
4	" " " " " "	49	2	17	0
5	" " " " " "	64	3	1	5
6	" " " " " "	46	3	6	5
7	" " " " " "	7	12	5	
8	" " " " " "	62	2	17	11
9	" " " " " "	66	3	5	8
10	Foot of Chimney.....	66	3	5	8

AMERICAN IMPROVED GAS LIGHT.—MR. David Bush, who introduced the above light here last summer, has returned from the Eastern States, where he has been to examine the latest improvements and make arrangements for its successful introduction here, where we understand a company is to be formed. It has been in practical operation in some of our large buildings, for the last ten months; thus it seems we are to have a good and cheap light at last.

PETROLEUM CASKS.—The *American Artisan* says that a strong solution of glue will when dry, serve as a coating for the interior of casks intended to contain petroleum, which will be perfectly impermeable to the oil. A point worthy of consideration in the storing of petroleum for fuel in steam vessels, is the fact, pointed out by M. Deville, that it increases in bulk one-hundredth of its volume for every ten degrees centigrade of heat. Space should therefore be left in the casks to permit any probable expansion, otherwise they might burst.

The Paris Exposition Reports.

We have received from Prof. Wm. P. Blake, California Commissioner to the Paris Exposition, the Prefatory Report of Hon. N. M. Beckwith, Commissioner-General for the United States at that Exposition, giving an amended list of the awards to the U. S. exhibitors. The awards to exhibitors from this coast have already been published in the columns of the MINING AND SCIENTIFIC PRESS. Mr. Beckwith's report gives a list of the special reports which have already been submitted, or which may be expected. This list is as follows:

On new inventions, scientific apparatus, and instruments of precision, by Professor F. A. P. Barnard, of New York.

On methods and processes in chemical science, etc., etc., by Prof. J. Lawrence Smith, of Kentucky.

On the transmission of intelligence, by Prof. S. F. B. Morse, of New York.

On Bessemer steel, and on iron and steel, by Mr. Abram S. Hewitt, of New York.

On railway materials, locomotives, and marine engines, by Mr. W. S. Auchincloss, civil engineer, of New York.

On minerals, agricultural products, and on inland and ocean transportation, by Mr. S. B. Ruggles, of New York.

On important products in science and art, by Mr. C. B. Seymour, of New York.

On instruments and apparatus of surgery, surgical dentistry, and military sanitary institutions, by T. W. Evans, M.D., of Paris, France.

On the fabrication of beton, concrete, cements, and construction of sewers, tanks, wells, etc., etc., by Mr. L. F. Beckwith, civil engineer, of New York.

On asphalts and bitumen, and the construction of streets, sidewalks, etc., etc., and on macadamized roads, by Mr. Arthur Beckwith, civil engineer, of New York.

On the culture and manufacture of silk, by Mr. E. C. Cowdin, of New York.

On fire-arms and materials of war, by Mr. C. B. Norton, of New York.

On pianos and musical instruments, and on clothing, by Mr. Paron Stephens, of Massachusetts.

On the preparation of food, by Wm. E. Johnston, M.D., of Paris, France.

On the practical application of fine arts, by Mr. Frank Leslie, of Philadelphia.

On educational apparatus, by Prof. J. W. Hoyt, of Wisconsin.

On building materials and methods of building, by Mr. J. H. Bowen, of Illinois.

On education, school-houses, etc., by Mr. J. R. Freeze, of New Jersey.

On wools and agricultural products, by Mr. J. P. Reynolds, of Illinois.

On woolen manufactures, etc., by Mr. E. R. Mudge, of Massachusetts.

On gold, silver, and precious metals, by Prof. Wm. P. Blake, of San Francisco.

On the vine and its culture, and on horticulture, pomology, etc., by Messrs. M. P. Wilder, of Boston, Mass., Wm. J. Flagg, of Ohio, and A. Thompson, of New York.

On minerals and metallurgy; apparatus for boring tunnels; apparatus for rock-breaking and stamping, washing and separating ores and minerals; pressed coal, its uses, etc., etc.; precious metals; sugar-beet and beet-sugar; trans-atlantic cable; sewing machines, and copper and coal, by H. F. Q. d'Aligny, mining and civil engineer, of Michigan.

It will be noticed that these reports are all from professional men, whose established reputation in their respective specialties will be a sufficient guarantee of the thoroughness and accuracy of the information which they will communicate to the public. Never before was such an array of practical talent brought together in this country to examine and report upon the best fruits of the industry and skill of the world. The idea is a grand and noble one. Twenty-five men, who have been long devoted to special studies, each one of whom is perfectly familiar, not only with the first principles involved in the department of industry to which he has been assigned, but also with the practical application thereof in all its details, have been appointed to write essays on nearly all the various departments of labor which enter into the industrial pursuits of man.

In the struggle to gratify human wants, scientific, mechanical and industrial progress is very unequally developed in different countries; but the bringing together of the best fruits of such industry in a grand

exhibition of the world's skill and progress facilitates, in an eminent degree, the exchange and diffusion of the various kinds and methods of production, and thereby equalizes, to a great extent, the common stock of knowledge. The advantages of such exhibitions have long been felt and acknowledged.

In order to render the results of the Paris Exposition still more widely beneficial, the National Government arranged the Commission, to which reference has been made, with the especial view of collecting for publication and general distribution every important fact of practical value. How well that commission has been executed may be inferred from the judicious assignment of duties, which has been made, and from the assiduity, ability and zeal which has thus far been developed in the performance of the work.

The only special report which has yet reached us is that of Mr. A. S. Hewitt, on "The Production of Iron and Steel in its Economic and Social Relations." This report occupies 104 closely-printed pages, and gives a general expose of the present condition of the iron manufacture throughout the world. The various iron manufactures of this country are compared with those of Europe; relative costs of material and labor are given, as well as reference to the moral and intellectual condition of the workmen in these two quarters of the globe. We are indebted to Professor Blake for a copy of the report.

We learn from our Eastern exchanges that Mr. E. C. Cowdin has also sent to the Secretary of the Treasury his report on the subject of "Silk and Silk Manufactures," in which he shows that it is perfectly practicable for the United States to supply herself with raw silks, without any reliance whatever on foreign countries.

Professor Blake writes us that he has prepared and sent to Mr. Hoag, Secretary of the State Agricultural Society (from which Society, as well as from the State, he held a commission), a report, which we presume will appear in the forthcoming annual report of that Society, which is now in the hands of the printers. The Professor also writes us that in January last he sent a report upon the Exposition to Governor Haight—a manuscript of about 150 pages—from which he has not yet heard. We have seen no notice of such a document being communicated to the Legislature; but presume it has been so communicated, or disposed of in some other way, through which it will soon be placed before the public. We presume this report is the one set down to the Professor in our special list "On Gold, Silver and the Precious Metals." It is probably now in the hands of the State Printer—where the mills grind slowly.

The Professor has also communicated the above facts, officially, to Albert S. Evans, Secretary of the General Committee of the Paris Exposition for the State of California, together with the following, which will be of interest to those in this State to whom medals have been awarded:

"The medals [awarded to U. S. exhibitors] have been received here [Washington], and will be exhibited, in a few days, in the old hall of the House of Representatives. * * * When the medals are ready for distribution, it will be necessary for the parties for whom they are intended to either claim them in person or authorize some one to receive the medals and receipt for them. As I shall probably be here, I will be happy to attend to this for those of our State who desire and authorize me to do so, and I will forward the medals by Wells, Fargo & Co's Express, or as may be directed."

The "Pictured Rocks," whose origin and constituents a few weeks ago elicited so much discussion in our columns, may be seen for a short time at Woodward's Gardens. While an interesting subject of study to the scientist, they are an object of curiosity to all.

NATURAL ILLUMINATING GAS.—Sources of natural gas have been discovered in several places near the city of New Orleans. It is only necessary to sink an iron tube to a depth of forty feet, when the gas begins to flow out at the rate of five feet per hour, and is accumulated in suitable reservoirs. It burns with a clear, white flame, equal, it is said, to the best purified coal gas.

AN ERROR.—There is a statement going the rounds of the press, purporting to be from the MINING AND SCIENTIFIC PRESS, to the effect that the type metal furnished from the Montezuma Smelting Works, in Humboldt county, is composed of thirty parts of lead and seventy parts of silver. It should read thirty parts of lead and seventy parts of antimony—the silver having been separated from the base metals by calcination and cupelling.—Humboldt Register.

The fact was correctly stated in the MINING AND SCIENTIFIC PRESS, as implied by our cotemporary.

The new Oakland ferry boat now being built at the end of Long Bridge, is nearly ready for launching. She will be 225 feet long, and can carry 2,000 passengers. Can New York do better?

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Physician and Surgeon.
H. G. Cosgrove, Superintendent.

21v16-3m

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 bridge over the Ohio River at Cincinnati,
 from plans by Mr. J. A. Roebling, has a
 span of 1,057 feet, the largest existing span
 of a suspension bridge. It crosses the
 river, with a clear headway of 100 feet
 above low water; the greatest variation be-
 tween the summer low-level and that of the
 spring freshets, being sixty feet. The mass-
 ive towers of masonry rise 200 feet above
 low water. The supporting members of the
 bridge are two cables of parallel wires of
 No. 9 gauge—each cable being 12½ inches
 in diameter, and containing 5,250 wires;
 the breaking strength of the wire being
 over sixty tons to the square inch of net
 section. Nearly half of the weight of the
 roadway and load, is carried by diagonal
 wires, running straight from the tops of
 the towers to successive points along the
 floor, so that the main cables, stiffened by
 this arrangement, really carry about half of
 the total weight of the roadway and load.
 Length, 2,000 feet; cost \$2,000,000.

The Niagara suspension bridge is of 883
 feet span, and 230 feet above the river.

Amongst tubular iron bridges, those
 erected by Stephenson are among the most
 extraordinary structures of modern times.
 The Britannia bridge, across the Menai
 Strait, built for the Chester and Holyhead
 railroad, consists of four spans, two of 230
 feet each, and two of 468 feet each. It is
 100 feet above high water. The Conway
 bridge, also erected by Stephenson, has a
 single span of 414 feet, and is but eighteen
 feet above the level of high water.

The Kieff suspension bridge—among the
 greatest of all suspension bridges in extent
 —over the Dnieper river in Prussia—Chas.
 Vignoles, engineer—was begun September
 9th, 1848, and finished October 10th, 1853.

Its extreme length is 2,562 feet. Each of
 the principal spans is 440 feet; each of the
 two side openings are 225 feet. There are
 also drawbridges at each end. The clear
 water way is 2,140 feet. The platform of
 the bridge is thirty feet above the summer
 level. The river rises twenty feet. The
 height of piers from foundations, is 222 feet.

The versed sine of chain (not wire cable,
 but a chain of bars) is thirty feet. Each of
 the four chains is 2,280 feet long; their
 weight and that of the piers being 1,578
 tons. The minimum sectional area of the
 four chains is 429 square inches. The total
 weight of the iron in the bridge is 3,500
 tons. Of masonry and concrete, 1,500,000
 cubic feet were used in the construction.
 The total cost of the bridge was \$2,160,000.
Am. Jour. of Mining.

A REMARKABLE GAS WELL.—Mr. F.
 Bowen, writing to the *Scientific American*
 from Burning Springs, West Virginia,
 gives the following description of a won-
 derful well emitting gas at a high pressure.
 He says:

"I will attempt to give you some idea of
 an immense gas vein here, which may be
 interesting to you and your readers. The
 well is 900 feet deep, four-inch bore, with
 a two-inch pipe leading from it more than
 a mile long, supplying 28 boilers of 12
 horse power each, 50 stoves, and many
 lights, beside those which spring from
 leaks along the line, in consequence of the
 great pressure. I am now writing before a
 brilliant light on the counter, an engine of
 one horse power pumping water over the
 house, and the waste gas running two
 stoves. My gas is brought through one-
 half and three-quarters inch pipe, and yet
 I am obliged to cut it off outside to pro-
 duce the proper pressure. I believe the
 pressure is not less than 200 pounds to the
 square inch. The gas is nearly pure hydro-
 gen with some carbon; it soon, however,
 mixes with the atmospheric air and thus
 becomes illuminating."

THE TRUE POLICY.—The Lawrence
American states that a prize of 10,000 francs
 has been awarded to the Pacific mills, at
 Lawrence, by the Paris International Exhi-
 bition for its success in securing a state of
 harmony between the employers and work-
 people, and in promoting the material, in-
 tellectual and moral welfare of the opera-
 tives. "This is one of three awards of
 10,000 francs each, proposed by the Em-
 peror of France, to be given to individuals
 or associations for superiority in the above
 respect." This shows that the French
 Mephistopheles has deeply studied the sub-
 ject of "how to do it."

GERMAN SILVER.—PAK FONG.—The origi-
 nal German silver is made of copper, forty
 parts; nickel thirty-two, zinc twenty-five,
 and iron three parts. Another recipe is:
 nickel and zinc each one part, and copper
 two parts. The Chinese Pakfong is made
 of nickel and zinc each seven parts, and
 copper five parts.—*Jour. Applied Chem.*

IMPROVED SAFETY-LAMP.—An ingenious self-extinguishing safety-lamp has recently been patented by Mr. Louis Dessens, and consists in attaching to the wick-holder a spring, the tendency of which is to draw it downward into the wick-tube. One side of the holder, which is notched, passes through a slot in the tube, and is worked by a screw from below the oil chamber. There is a spring and pins, which permit of the closing of the lamp after it is lighted, but if any attempt be made to screw off the top the spring is brought against one of the pins; and the unscrewing being continued the wick-tube revolves, taking the rack off the screw, and permitting the spring in the wick tube to draw the wick downward and extinguish the light.—*London Mining Journal.*

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Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

PAUL NEUMANN, Secretary.
Office, No. 411 California street. my23

The Flora Glazier Quartz Mining Company.
Location of Works: Plumas County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of May, 1868, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

L. N. THOMAS, Secretary.
Office, No. 17 Montgomery Street, San Francisco, Cal. m23

Green Gold and Silver Mining Company.—Location of Works: Gold Hill District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 606 Battery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the sixteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. JOHNSON, Secretary.
Office, No. 606 Battery street, San Francisco. my23

Whitman Gold and Silver Mining Company.
Location of Works: Indian Springs District, Lyon County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of May, 1868, an assessment of ten dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, room No. 10, 2d floor of No. 402 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office 402 Montgomery street, (room No. 10, 2d floor) San Francisco Cal. my23

Mining Notices--Continued.

Adella Gold Mining Company, Rock Creek,
Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of May, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth (6th) day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, 37 New Merchants' Exchange, California street, San Francisco. my16

Chilpaneca Mining Company--District of Ures,
Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of May, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, up stairs, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. my16

Great Central Mining Company--Location of
Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street, San Francisco. my16

Hope Gravel Mining Company, Location of
Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of May, 1868, an assessment (No. 23) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 343 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the twenty-ninth day of June, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 533 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. m9

I. X. L. Gold and Silver Mining Company--Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth (4th) day of May, 1868, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. my9

Lyon Mill and Mining Company, Kelsey District,
El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of April, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-seventh day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth day of June, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. apr23

Nuestra Señora de Guadalupe Silver Mining Company.—Location of Works: Toyollint, San Dimas District, Durango, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of March, 1868, the several amounts set opposite the names of the respective shareholders, are as follows:

Names.	No. Certificate.	No. Shares.	Amount.
M. Meyer.....	87	5	\$7 50
Pat. Cavanah.....	164	5	7 50
John Frankenthaler.....	101	10	15 00
John Greif.....	16	60	90 00
John Greif.....	161	10	30 00
Val. Gassner.....	181	10	15 00
Kelchianter.....	62	5	7 50
John Mayer.....	77	5	7 50
E. J. Pfeiffer.....	77	50	45 00
H. A. Roessler.....	13	5	7 50
G. Rulisch.....	169	10	15 00
Joseph Sindel.....	Not issued	5	7 50
E. Sindel.....	Not issued	25	37 50
C. Scherer.....	154	5	7 50
L. van Laak.....	80	10	15 00
L. van Laak.....	93	10	15 00
Ferd. Wagner.....	166	32	45 00
Of formerly unassessable stock.....			
Jos. Anselon.....	191	10	15 00
Jos. Anselon.....	168	5	7 50
Louis Kraft.....	166	15	22 50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Badger & Chapman, auctioneers, N. W. corner of Kearny and California streets, San Francisco, California, on Tuesday, the nineteenth day of May, 1868, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco, Cal. my2

POSTPONEMENT.—The above sale is hereby postponed until Saturday, the thirtieth day of May, 1868, at the same hour and place. By order of the Board of Trustees.

my16 E. J. PFEIFFER, Secretary.

Old Colony Silver Mining Company--Location
of Works: Austin, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 223 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY O. HOWARD, Secretary.
Office, 523 Montgomery street, San Francisco. my16

Office of the Folsom Street and Fort Point
Railroad and Tunnel Company.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of April, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to Caleb T. Fay, at the office of the Company, Room No. 16 Stevenson Street, at the southwest corner of Montgomery and California streets, San Francisco, Cal.

Any shares of stock upon which said assessment shall remain unpaid on the twenty-sixth day of May, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the eleventh day of June, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOS. M. WOOD, Secretary.
Office, Room No. 16 southwest corner of Montgomery and California streets. my2

Rogers Silver Mining Company--Location
Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1868, an assessment of one dollar per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold and silver coin, to John Barton, Treasurer, at his office, No. 218 Sacramento street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixteenth (16th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. POPE, Secretary.
Office, No. 218 Sacramento street, San Francisco. my16

Rattlesnake Gold and Silver Mining Company,
Brown's Valley, Yuba County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-eighth day of April, 1868, an assessment of two (\$2) dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the fifteenth (15th) day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOISE, Secretary.
Office, 318 California street, up stairs, San Francisco, California. my2

Office Seaton Mining Company--Location of
Works: Drytown Mining District, Amador County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of April, 1868, an assessment of one hundred dollars (\$100) per share was levied upon the capital stock of said Company, payable June 5th, 1868, in United States gold and silver coin, to the Secretary of the Company, at his office, Hayward's Building, California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the fifth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirtieth day of June, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOEL F. LIGHTNER, Secretary.
Office, Hayward's Building, California street, San Francisco, California. my2

Whitman Gold and Silver Mining Company.
Location of Works: Indian Springs District, Lyon County, Nevada.

Notice is hereby given, that the Annual Meeting of the Stockholders of the Whitman Gold and Silver Mining Company, will be held at the office of the Company, No. 10 second floor of Express Building, No. 402 Montgomery street, San Francisco, on TUESDAY, the second day of June, 1868, at two o'clock P. M., for the election of Trustees and the transaction of such other business as may be presented.

T. W. COLBURN, Secretary.
Office, room No. 10 second floor of No. 402 Montgomery street, San Francisco. my9

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merit.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the miller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
1st St. San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Works Co., Hartford, Ct. To parties wishing a first-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

Pacific Iron Works.

San Francisco, Aug. 29, 1867.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

BY

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3rd St. SAN FRANCISCO.

NOTICE TO MERCHANTS

AND

MANUFACTURERS.

Moore's Patent Friction Hoist.

Now in successful operation in the principal stores in San Francisco, possesses many advantages over the common Hoist—greater strength; less danger in working, as goods require no slinding or landing; consequently make fewer breakages; requires one man less to operate it; stops with the load at any point, without any fastening or attention from the operator.

The undersigned take this opportunity to notify all whom it may concern that they have secured, by letters patent, the application of a friction hoist, and to hoisting machines, and that they will prosecute any party making or using any machine infringing upon the same.

VULCAN IRON WORKS CO.,

By Joseph Moore, President.

2nd St.

JOSEPH MOORE.

HUNGERFORD'S

Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25th St.

MORAN HUNGERFORD.

A FULL ASSORTMENT OF

MOLDERS' TOOLS,

Constantly on hand and for sale at low prices, by
CHAS. OTTO & CO.,
Successors to Marwedel & Otto, 312 Bush St., a few doors above Montgomery, San Francisco.

22nd St.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Mill Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,

8th St.

Stove Store, No. 125 Clay street, below Davis.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of
Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

1st St.

No. 525 Mission street, near Second.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clerc & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and patterns of every description. Jig-Saws of any size or strength, of a new and superior quality, built to order. Also an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regulated by the style required.

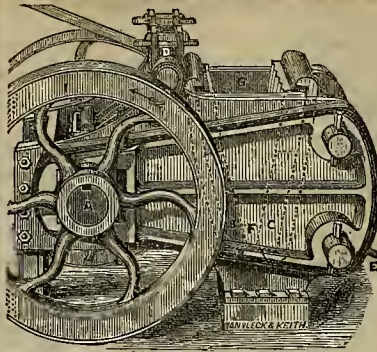
Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEYS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Bust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice.

7th St.

H. T. HOLMES.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, \$600
No. 2—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour, 850
No. 3—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour, 1,200

The frame is made of cast iron, bound with heavy wrought iron bands, making it very strong, and at the same time light and portable. The crusher is bolted to a wood frame of sufficient height to clear the fly-wheel, and allow the crushed quartz to pass off. The dotted lines show the movable and stationary jaws. Letter A represents the eccentric shaft by which the power is applied direct to the movable jaw. B represents the movable jaw, and C the fixed jaw. D represents the link or radius bar. E represents the bolts for regulating the opening, F, which can be regulated at pleasure, so as to graduate the size to which it is intended the quartz shall be crushed. G represents the feed opening, by which the size of the machine is designated.

The arrow on the fly-wheel shows the direction to drive the eccentric, which, in combination with the link, L, gives the movable jaw, B, a forward and downward motion at the same time, and which makes the hardest rock yield and separate into fragments of any desired size. The above Crushers have been recently erected and are now successfully employed at Bear Valley, Mariposa county, Rawhide Ranch, Tulumene county, Excelsior Mine, Lake District, Nevada county, and can be seen in operation at the Fulton Foundry, First street, San Francisco. The following testimonial respecting the effectiveness of this Crusher, has been received from the Superintendent of the "Rawhide Ranch" Mine, in Tulumene County: RAWHIDE RANCH, Tulumene Co., Sept. 28, 1866. JAMES BRONIE, Esq., San Francisco—My Dear Sir: I give you pleasure to inform you that I have for the past three months had one of your largest sized Rock Crushers in use, at the Rawhide Ranch Mining Company's Mill, which is entirely met my expectations; and I have no hesitation in recommending it to all who are in need of a machine for rapidly, cheaply and properly preparing quartz for the stamps. Yours truly, R. P. JOHNSON, Supt. Rawhide Ranch Quartz Mill.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers. For the present it is not intended to grant licenses for the use of the improved German Barrel, for a longer term than twelve months. All persons desiring to compromise, without having recourse to legal proceedings, for past infringements, or desirous of receiving Letters of License for the limited period named, are requested to address as below. A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866. JAMES BRODIE, Fulton Foundry, or CHARLES RAILLON, Express Building, 402 Montgomery street, San Francisco.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—This Dry Crusher has been found the most economical and effective mode of crushing ores in Mexico, California and Nevada. Diagrams and explanations afforded on application to the subscribers. A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866. JAMES BRODIE, Fulton Foundry, or CHARLES RAILLON, Express Building, 402 Montgomery street, San Francisco.

12th St.

C. F. TRAVIS,

Manufacturer of
FRENCH
BURR
Mill-Stones,
AND
PORTABLE
MILLS.
—
Agent for
Dufour & Co's
Celebrated
DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS, 109 Mission street, San Francisco.

5th St.

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Eisen Bros., Pioneer Mills; Martin Sien, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer.

6th St.

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel Files,
Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of
Mill Picks, Sledges, Hammers, Picks,
Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco.

10th St.

PACIFIC

FILE, REAPER AND MOWER SECTION

Manufactory,

No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.
2nd St. First premium awarded at the State Fair, 1867.
25th St. DURNING & KENNEY, Proprietors.

A FULL ASSORTMENT OF

TWISTED DRILLS,

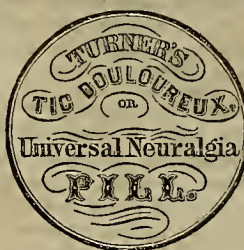
At low prices, being sole Agents for the manufacturers, (the Manhattan Wirecords Company.)

—AL—
Steam Gauges, a general assortment of
Hardware, Cutlery, and
MECHANICS' TOOLS,
By CHAS. OTTO & CO.,
312 Bush street, San Francisco.

A FULL ASSORTMENT OF

MACHINE SCREWS AND TAPS

Constantly on hand and for sale by
CHAS OTTO & CO.,
22nd St. 312 Bush street.



**A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
NERVOUS
DISEASES.**
Its Effects are
Magical.

It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three pills. No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can always be used with

PERFECT SAFETY.

It has long been in constant use by many of our most

EMINENT PHYSICIANS,

who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	43 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by
TURNER & CO.,
Sole Proprietors,
120 Tremont street, Boston, Mass.

9th St.

Rock Drilling Machines.

FOR SALE.—ROCK DRILLING MACHINES (Garner's Patent) for sinking shafts. One man with this machine, can do as much tunnel and drilling work in one day as four men can do with any other machine. Apply to JOHN OVERENO, Bulletin Press Room, 511 1/2 Clay street, San Francisco.

13th St.

Legitimate Photography

OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photographs, and a special premium for the best Cabinet Portraits, to SILAS SELLECK, 415 Montgomery street. Prices reduced to conform to Association rules. Patent secured.

25th St.

Eley's Ammunition.

These Cartridges are made in three sizes, viz., .37 (or Snider Enfield) bore; .50 (or half-inch) bore; and .45 (or small) bore.

These Cartridges have been adopted, after careful comparative trials against all other descriptions, by HER MAJESTY'S WAR DEPARTMENT, as the standard Rifle Ammunition for the BRITISH ARMY, and are not only used exclusively for the Snider Rifle, but are adapted to all other systems of military RIFLE LOADING RIFLES. They are the cheapest Cartridges known, carrying their own ignition, being made wholly of metal, are water-proof and impervious in any climate.

Boxer Cartridge Cases (empty), of all 3 sizes, packed with or without bullets, and machine for filling same in Cartridges.

Makers of BOXER CARTRIDGES. .450 bore for Revolving Pistols, in use in Her Majesty's Navy.

PIN CARTRIDGES for Lefauchaux Revolvers of 12 m, 9 m, and 7 m, bore.

CENTRAL FIRE and PIN FIRE CARTRIDGES, for all sizes of guns, Rifles and Revolvers.

Double Water-Proof and E. B. Caps. Wire Cartridges for killing game at long distances. Felt Waddings to improve the shooting of guns; and every description of Sporting and Military Ammunition.

Wholesale only. **ELEY BROTHERS,**
18th St. Gray's Inn Road, London, W. C.

18th St.

National Mineral Land Law, Instructions.

Blanks, Etc.

Copies of the Act of Congress, approved July 26th, 1866, relating to the Location of Mineral Lands, together with the instructions to the "United States Registers and Receivers and Surveyors General," from the Commissioner of the General Land Office Department of the Interior, dated at Washington, Jan. 14th, 1867, can be had at this office. Also a full set of blanks for making applications, advertising, etc. Address DEWEY & Co., office Mining and Scientific Press, San Francisco.

WHAT THEY THINK OF IT.—The *American Journal of Mining* for April 18th, has an editorial upon the Geological Survey of California, which shows us what we are to expect from the scientific world generally. We quote:

"The telegraph has recently brought us news of a calamity that will be regretted by all interested in the progress of science and the prosperity of our Pacific States. The Legislature of California, with a shortsighted economy that appears to us perfectly incomprehensible, has abolished the Geological Survey of that State, at a point in its career when it was just about giving to the world the most important of its results. A small but laborious corps has been for upwards of seven years, under the leadership of a man whose position is deservedly at the head of his profession in the United States, contending against all the disadvantages and hardships incident to frontier travel, in a country where settlements are scattered, roads few, among mountains exposed for weeks at a time to the snow and rain.

Inspired by the energy and indomitable pluck of their chief, they have persevered, in the belief that they would be amply rewarded by the eventual publication of the results of their labors in a manner alike creditable to themselves and to the State that had inaugurated so noble an undertaking. There was not a man in the commission, from its chief to his most subordinate assistant, but could at any time have commanded a much larger salary outside the Survey than in it. Their continuance in the work was therefore a direct pecuniary sacrifice; and the action of the Legislature in not providing for the publication of the reports must be looked on as little short of an indirect breach of faith on the part of the State. * * * Had the plans of the Survey been carried out as ordered by the Legislature that inaugurated it—"an accurate and complete geological survey of this State, with proper maps and diagrams thereof, together with a full and scientific description of its rocks, fossils, soils and minerals, and of its botanical and geological productions"—the reports and maps would have comprised a library of scientific and economic information, equaling in value the deservedly admired reports of the New York commission. Besides the persons directly connected with the work in California, many of the most eminent scientific men of the country had been engaged for several years as co-laborers in their specialties. * * * We sincerely trust that some provision has been made for the publication of the reports now ready. The information to be obtained from a meager telegraphic message is, at best, unsatisfactory; and we can only hope for the best, while we fear for the worst. Professor Whitney, we understand, expects to sail for the East this month, and will doubtless very soon assume his new duties at Cambridge, where a professorship has been waiting for him for several years."

PROFITS OF THE PARIS EXPOSITION.—The figures of the Paris Exposition foot up brilliantly. Three millions of francs, or about \$600,000, are the profits on the enterprise. Eleven millions of persons passed the turnstiles, to say nothing of the season subscribers, exhibitors, jurors, and other "deadheads." There is now an embarrassment as to what shall be done with the money—an extraordinary question (one would think) for France, where everything is regulated beforehand. The Imperial Government subscribed one-third of the money necessary for the enterprise, and the municipality of Paris one-third; but there was no thought of realizing a profit. They hoped only to cover expenses, and all the economy of the Commission (some people call it meanness) looked only to this end. Each of the parties now refuses to accept its million, and the probability is that, after paying them the interest on the money and the cost of a hundred lawsuits that are going to follow, some useful destination will be found for the money. The sum gained on the three "supplementary days" for the poor of Paris was 176,000 francs.—*American Artisan*.

AQUARIUMS.—Aquariums are now essential in the room-gardening of all persons of taste. Growing plants, fishes and water reptiles are placed in the same globe or tank of water, and the gases which the fish reject are the food of the plants; while the plants, on the other hand, prepare the elements necessary for the health of the fish. By this beautiful principle of reciprocity, both plants and animals remain in perfect health, without the water scarcely ever being changed.—*Gardener's Monthly*.

HEAVY BLASTING.—A blast, estimated to have brought down 25,000 cubic yards, or about 50,000 tons of limestone, was lately fired in Mr. Savia's quarry at Llanymynech. Preparations for the blast were made as long ago as September last. A level 12 yards in length was driven into the vertical face of the rock at a height of a few yards above the floor of the quarry. At the end of this level a cross level was driven right and left, and at each end a vertical shaft was sunk, besides a third at an intermediate point, these shafts reaching down to the level of the floor of the quarry. Chambers were forced at the bottom of the shafts, and 6,000 lbs., 4,000 lbs., and 3,000 lbs., respectively, of powder were placed in them, or nearly six tons in all. This large quantity of powder was not so great as has been used in single blasts at Holyhead, where as much as 11 tons has been fired. The blast was successfully fired by electricity, the wires being connected with a Grove's battery of 28 cells. The limestone brought down will be carried into Shropshire and South Staffordshire to be used as flux in the blast furnaces of those districts.—*London Engineering.*

MUSIC BY TELEGRAPH.—A London musical paper says that by the adaptation of Baker's system of electricity to organs, it is possible for a performer in England to play on an instrument situated in America. To have the great organ in the Boston Music Hall, or that in Mr. Beecher's church, played by the agency of the Atlantic cable would now-a-days be regarded as no more wonderful than the laying of the cable itself. This was considered an impossibility only a few years ago.

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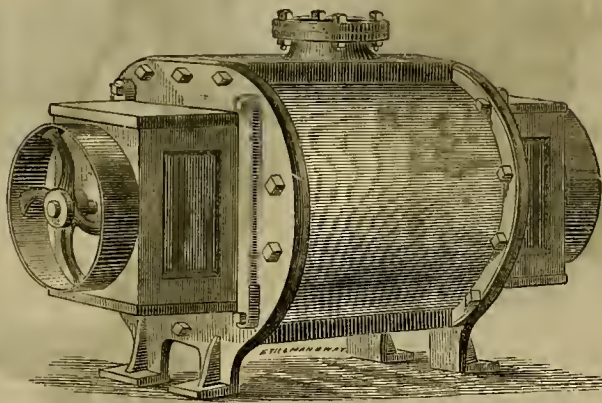
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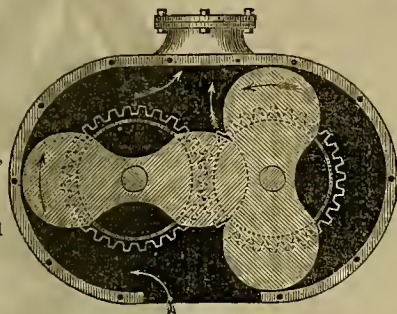
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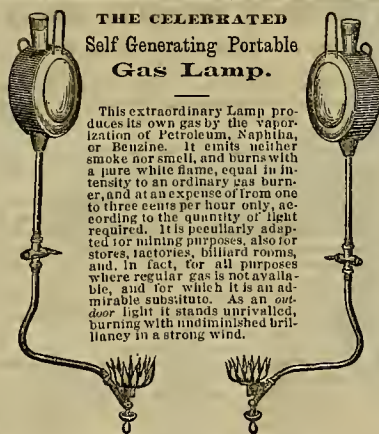
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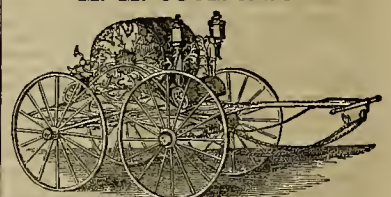
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SPONGE FOR BEDS INSTEAD OF HAIR OR FEATHERS.—Scientific research has been long and actively engaged in devising some other substitute for feathers in beds, than curled hair. Various substances have been tried, such as pulu, shavings peculiarly prepared, California soap root, etc. Quite recently an entirely new textile has been introduced, which promises important practical results. This new textile is known as "grass sponge," which grows in great profusion along the coast of Florida, and in many other parts of the Gulf of Mexico. This is not the ordinary sponge of commerce, and has no known commercial value, except for this purpose. It grows in shallow water, and hence is easily and cheaply collected. After proper preparation a quantity of this sponge, which may be closely compressed into one cubic inch of space, and held there for months, will, on being liberated, expand to twelve times its compressed bulk. This peculiarity gives it an especial value for upholstery, mattresses, etc. It never packs, and is always free from every description of insect life.

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THE LABOR EXCHANGE.—The engagements at the Labor Exchange for the five days ending Thursday night last, were 335, distributed as follows: Laborers, 121; teamsters, 21; lumbermen, 25; painters, 11; carpenters, 23; farm hands, 45; coopers, 4; cooks, 7; blacksmiths, 6; shoemakers, 3; wagon makers, 4; miners, 3; other trades, 68. There has been quite a demand, during the week, for farm hands and lumbermen. The large number of workmen sent into the interior, through the assistance of the Labor Exchange, has materially reduced the number of unemployed persons in the city; so much so that it is now found difficult to answer orders for several kinds of labor. These results speak most unmistakably of the benefits resulting from this institution. It has made a practical demonstration to the world, of what has all along been claimed, that there is an abundant demand for labor in California, which the unemployed can find by looking for it.

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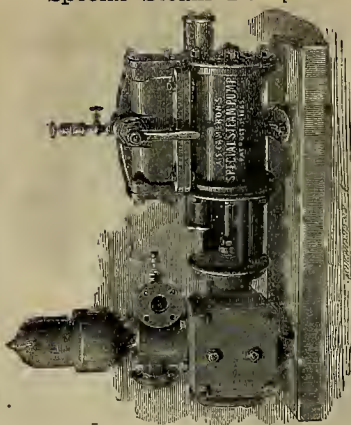
DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. G. W. Purdy, who formerly resided at Forrest City. About two years ago, while under treatment myself, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Marysville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the *Mountain Messenger*, of February, 1893.

10v16 3m

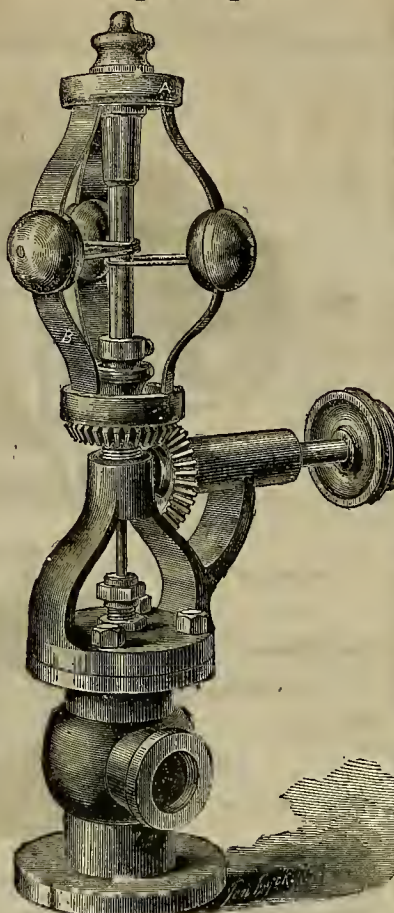
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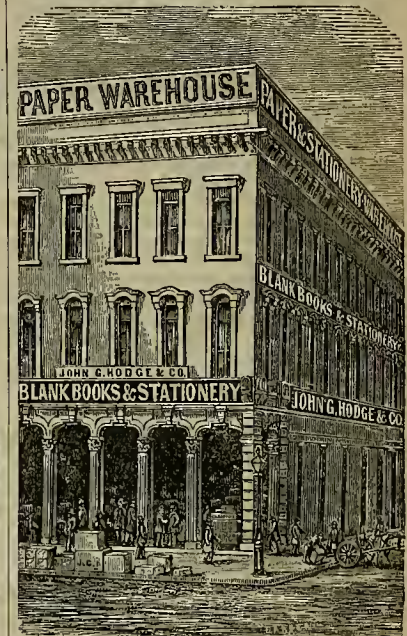
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The Mechanics' Institute Fair.

The Directors of the Mechanics' Institute are busily engaged in making preparations for the forthcoming Fair. The arrangements of the building will altogether surpass any previous one as to space, light, and convenience for both exhibitors and visitors. It has been a general remark heretofore, with regard to these exhibitions, that imported merchandise and manufactures have overshadowed the productions of our own people. It is intended that no such imputation shall apply to the forthcoming exhibition. The most active exertions are being made to secure a full and extensive display of the manufactures of the Pacific Coast. Every consideration of pride and interest should be urged to secure success in the enterprise.

Work upon the Pavilion has already commenced, and the proposed structure will soon begin to assume form and shape. The superintendence of its construction has been placed in the hands of a competent mechanic, who will hire and direct the labor, under the general control of the Board of Directors. The building will be put up under the eight hour rule of labor. We are pleased to learn that the committee having the matter in charge, are meeting with most gratifying success in their canvass for exhibitors. Every possible facility will be extended, and abundant opportunity will be provided for the exhibitors of steam motors to display, to the best advantage, the merits and working capacities of their respective engines. The same facilities will be provided for exhibitions of machinery of every description.

It is hoped that manufacturers and others from the interior, will not neglect the opportunity which will be presented to exhibit the progress, extent and multiplicity of their various industrial interests. It is also expected that inventors will make a favorable show of progress. There has been a most unusual activity in this line during the past two years, and an exhibition of all the important inventions which have been made on the Pacific Coast in that time cannot fail to interest beholders, and must reflect the highest credit on the inventive genius of this western verge of civilization. Efforts are being made to make important specialties of the wine and silk growing interests of the State. Every citizen of San Francisco, in particular, should take especial pride in contributing everything in his power to secure the greatest possible success to this sixth grand industrial exhibition on the Pacific Coast.

Buerk's Watchman's Time Detector.

All large corporations or manufacturing concerns employ watchman, who look to the safety of the several buildings, and are expected to be vigilant in guarding the interests committed to their charge. Property of immense value is thus at the mercy, so to speak, of one man; for if he is neglectful of his duty, he is not only dishonest, but jeopardizes the daily bread of numberless persons who may have funds invested in the concern.

To hire one watchman to look after the other would not be a very wise proceeding, for by collusion they might set at naught all such precautions. Recourse is therefore had to machinery,—silent, insensate wheels and springs. By the judicious combination of these, tales can be told, which

By that act, a small hole is made in the paper, which tells what time the man appeared at each station; how often he came there; how long he stopped; how long it took him to go from one to another; whether he went in regular order or not; in short, it gives a complete record of his night's work.

The small figures are views of different keys. A flange on the side of the key prevents it being turned unless it is inserted quite into its place; so that the key used for one station cannot be used to make a mark for a key at another, nor indeed, can any key except a perfect duplicate be made to do it. Any attempt on the part of the watchman to evade his duty by counterfeiting keys, may be effectually baffled by occasionally changing keys from one station to another. An indefinite number of stations can be served.

has to be followed; but with this a watchman can be ordered to visit any particular place as often as required, without being compelled to go to places where it is not necessary to visit as often.

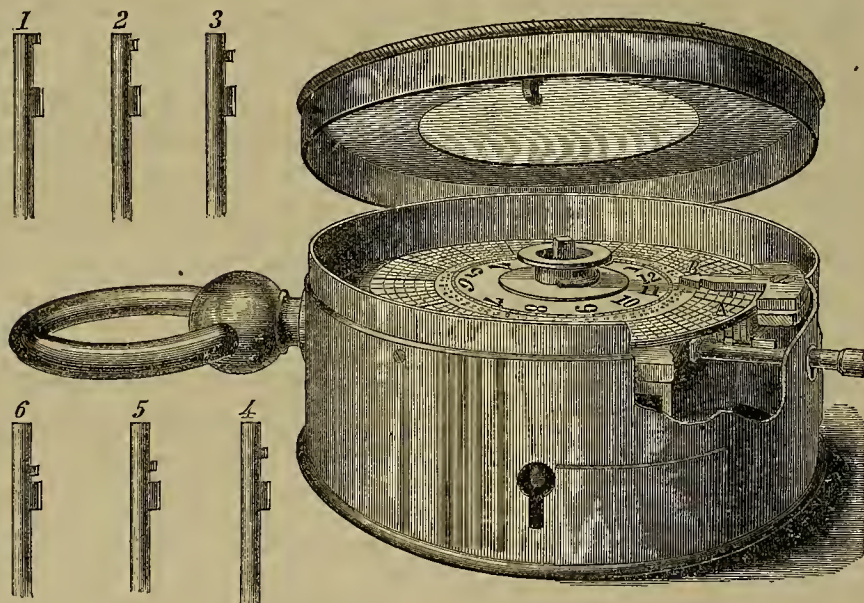
The instrument is complete in itself, portable, and as reliable as the best lever watch. It is not so likely to become disarranged in its works as a good watch, because its parts are stronger. But when it needs cleaning, any common watchmaker can adjust it, its mechanism being simple. It requires no fixtures or wires communicating from room to room, as in the case with the ordinary watch-clocks; a small, inexpensive stationary key is alone required at each station. Its use is not restricted to a single building, and places can be guarded that it would be impossible to guard with any other instrument, such as railroad tunnels, bridges, yards, shops, etc.

As it is very essential to carry the clock secure, taking care that it is not brought in contact with any hard substance, and thereby broken, the proprietor furnishes pouches with straps to go over the shoulder and around the body, which will be sent with the clock, if ordered, for \$2.50. The instrument will in all cases be warranted perfect and satisfactory. Its price is invariably seventy-five dollars, including as many keys as are requisite, not exceeding twelve, payable in United States currency.

This watch-clock is sold at a less price than any other in the market. The Detector is used extensively by large manufacturing establishments and railroad companies in the United States, from whom numerous testimonials have been received. Parties purchasing these clocks should

test them sufficiently in the counting-room or office, as they will not be taken back after having been injured by the watchman through carelessness. This Detector is covered by two U. S. Patents. Parties using or selling these instruments without authority, will be dealt with according to law. All communications addressed to J. E. Buerk, proprietor, 47 Congress street, Boston, will be promptly attended to.

To TEST THE PURITY OF FLOUR.—A simple mode of doing this, by means of chloroform, has been proposed by M. Rakowitsch. The flour is mixed with chloroform in a tube. The pure flour is held in suspension, while the damaged flour, the bran, the mineral matters, the ergot of rye, and other impurities, are not so held. The amount of humidity is determined by adding spirits of wine of 95°, which precipitates the flour. The more humid the flour, the greater the quantity of spirits required.



BUERK'S WATCHMAN'S TIME DETECTOR.

result in the dismissal of the untrustworthy servant, or his retention and reward if found worthy.

The annexed engraving is a view of a Time Detector, which is carried about by the watchman to all the different stations to be guarded. At each station is a small key, securely fastened to prevent his taking it with him. The watchman goes from station to station, takes the key fastened there, inserts it into the clock, gives it one turn, and goes on to the next, or to any other station, for he is not bound to go in regular order. By this it follows that a perfect record will be kept of each operation.

The broken out portion of the watch shows the mechanism which operates the pin which pricks the paper. At A, there is a number of sliding bars which connect with the pricking points, so that, by turning round the key, the ward on it strikes a certain bar and penetrates the dial paper B.

The watch is wound, set and closed each evening by the proprietor or superintendent, and the box locked with a key which he keeps, so that the register within is unseen by, and out of the reach of, the watchman who carries it. In the morning, when the Detector is returned to the superintendent, the graduated disk of paper may be removed from its position and filed, like a telegraph dispatch, as a permanent record, while a new disk is applied for succeeding records.

This Watch Clock was introduced to the public in almost every section of the United States and Canada several years ago, and it has proved itself to be the best invention in the world for testing the faithfulness of watchmen. Since its introduction, the proprietor has improved on some parts, and corrected deficiencies which have been suggested by using it, until he claims that he now has a perfect check upon the watchman. With other clocks a regular routine

Zinc and Electric Desilverization.

The extracting of silver from lead with the aid of zinc is a metallurgical theory of some years' standing, which has never been successfully reduced to practice. A new process, with the agency of zinc, has been patented in England by Herr Flach, of Prussia, through which it is claimed an entirely pure lead can be produced, not alloyed with zinc as formerly, and that there is a grain of from 3 to 4 per cent. of silver, as compared with the Pattinson process. An alloy of zinc, silver, and lead is formed, which is skimmed from the surface of the molten lead, and afterwards run down with silicious fluxes, and the final regulus of lead is subjected to cupellation.

Following close upon this dubious improvement is another process patented in England by Mr. W. G. Blagden, of Hackney Wick. It relates to the application of electricity to the molten lead, with which a small quantity of zinc has been incorporated. The recent advance made in the cheap production of electricity, is paying the way for its introduction into metallurgy as a new force in the conversion of substances. The *London Mechanics' Magazine* says that the operations of Blagden's process may be carried on in a pot similar to those used in separating silver from lead by Pattinson's concentration process. Before the lead is conveyed into the pot it may, if requisite, be placed in a reverberatory furnace, and there be submitted to a preliminary refining process, which may be conducted in the ordinary way. The object of this preliminary refining process is to remove by oxidation any portions of copper, antimony, arsenic, or other matters that the lead may contain; but in some cases, where the lead contains no other impurities than a little dross, the operation may be dispensed with altogether. Under ordinary circumstances, the average duration of the process is about twelve hours. From this reverberatory furnace the lead may be run or otherwise conveyed into the before-mentioned pot, which has been previously heated to prevent the lead from cooling or to facilitate the melting. The temperature of the lead is then brought to, say, about 430° Reaumur, in order that the zinc, to be subsequently added to it, may melt with it. Practically, the temperature may be considered about right when it is impossible to keep the hand at a distance of two and a half feet from the molten metal. The molten metal is then skimmed, and the dross thus removed may be treated in a reverberatory furnace with the next charge of lead, which undergoes a preliminary refining process. The object of this skimming is to remove all the impurities still retained by the lead; the dross will be treated again in order to extract the lead that is mixed with it mechanically. A quantity of zinc equal to about one-third to one-half per cent. of the charge of lead in the pot is now introduced into the molten lead by means of a suitable instrument, and the whole is then thoroughly and carefully stirred until the mass is well mixed. The instrument found best adapted for this purpose is a ladle provided with a cover and a long handle and perforated with a number of small holes. This ladle, containing a quantity of zinc, is placed in the molten metal, where it is allowed to remain till all the zinc has melted and passed through the small holes. The metal may be stirred by means of this ladle or other stirrers; if the mixture of the metals is not complete, the zinc will separate in lumps instead of forming a crust on the surface. An electric current, which may be generated by a suitable battery, in connection with one of Ruhmkorff's coils, or otherwise, is caused to pass through the molten metal; this current, which produces among other effects, in most cases, a certain tremor in the mass of metal, is continued for a period varying from ten to thirty minutes, according to the quantity and purity of the lead under treatment and to the proportion of silver it contains. The conductors used are rods of copper with wooden handles; two, four, six, or eight of these conductors may be suspended in the metal in any convenient manner; the current should be continued until all the zinc has reached the surface, when it ceases to have any action on the desilverizing of the lead. Towards the close of this operation it is advisable to begin to reduce the fire under the pot, in order to facilitate the solidification and separation of the alloy of zinc and other metals or impurities which are being formed. After the conductors of the electric current have been withdrawn from the molten metal, it is allowed to remain at rest and to cool for about a quarter of an hour, and the crust which in the mean time has formed on the surface of the metal, is then removed. By reducing the temperature in this way the alloy of

zinc becomes solid, and separates itself more readily from the masses of molten lead. The temperature found desirable for removing the crust is between 360° and 370° Reaumur, or when the metal has become solid round the sides of the pot to the extent of about half an inch. In removing the crust from the surface, a certain quantity of lead is always carried away too; but this is easily recovered in the subsequent treatment of the alloy. The temperature of the metal is now raised to say 430° Reaumur, and the operation of introducing from about one-third to one-half per cent. of zinc, followed by the application of the electric current and the removal of the crust, is repeated in the manner already indicated. When the lead under treatment is very impure, or contains a large proportion of silver, it may be necessary to repeat this process a third time or more, in order to desilverize the lead sufficiently. It is found desirable from time to time to make an assay of the metal in the ordinary way, with a view to ascertain what quantity of zinc, if any, it may be requisite to add to it, or whether the lead is desilverized to the required degree, say at least 1-500th per cent. The silver, which is contained in the various crusts or skimmings taken from the molten metal after each addition of zinc and passage of the electric current, may be recovered by any of the ordinary methods. The lead, when sufficiently desilverized, is conveyed to a reverberatory furnace, which has been previously heated, and there undergoes a refining or annealing process, in order to remove the zinc and other impurities which it has retained. The process lasts about three hours, and it is desirable to carry it on with a brisk flame. Thus purified, the lead may be run into ingots for sale.

MINING THE BEST INVESTMENT AFTER ALL.—Thos. Spargo in the *London Mining Journal*, April 11th, says: "It can now be scientifically determined whether ground is ore-bearing, and the skill of the mining engineer enables him to prepare an estimate of cost more accurate than is found in any other department of works. It may occur that the lode lies deeper than was expected; that it turns out poorer than the first yield could justify any one in supposing; that an incursion of water should happen, or some 'fault' be discovered; but the mishaps incidental to building such a ship as the Great Eastern or the Warrior, of laying down a line of railway, tunneling a mountain or under a city, of creating extensive irrigation works, or a ship canal, are of more frequent occurrence. Yet men will invest in such undertakings, and neither be warned or intimidated by loss after loss; while if every mine is not found to be a 'lode of wealth,' the utmost disappointment is experienced, and the business itself characterized as too uncertain for legitimate investment. If there were more hazard to the adventurer, which I deny, there is a more chance of splendid success. Which of all the departments of industry deemed most successful, has heaped upon its persevering followers such rich rewards? Great fortunes have been made in cotton-spinning and weaving, but wide spread loss and ruin have again and again swept away the property of the cotton districts.

Ship building has enriched enterprising persons, but how often has the storm scattered the fleets? The colonial produce-grower, in the cotton field, the indigo, or coffee plantation, etc., has often come home the victim of disease, and more frequently ruined by the failure of crops. Now, in mining, no such perils exist. The lode fails less frequently than the foreign produce crops. An inundation does not occur so frequently as a shipwreck, the storm that spoils the merchant sweeps over the miner harmlessly; he is, in fact, more free from the danger of losing the fruit of his capital than any other adventurer whatever; and every farmer, every grower of produce, every cattle breeder, merchant, and manufacturer is an adventurer as much as the investor in a mine, without having ground so sure to work upon, or chance so glorious of a magnificent result."

TO CLEAN LEADED DUST.—The following recipe for this purpose, which we clip from an exchange, may not be familiar to all of our readers:

Put the dust on a shovel or pan, heat it red hot, then put on grease and let it blaze till all is burnt dry; next put it in strong vinegar or acid, and let it remain twenty-four hours, when it will be clean and bright.

STOPPED.—The English system of delivering the mails on the New Haven express trains, without stopping them, has been abandoned.

The Microscope in Geology.

At a meeting of the Geological Section of the Birmingham Natural History and Microscopical Society, Mr. Allport read the following paper on some new minerals discovered by him in the South Staffordshire district:

In 1865, Mr. Forbes stated, in his report of the British Association on the Igneous Rocks of South Staffordshire, that they are composed of four minerals; and in a paper on British Mineralogy in the *Philosophical Magazine* for November, he has increased the number to seven by adding iron pyrites, hexagonal prisms of apatite and a zeolite, which appears to be hecitolite. I first called his attention to the two latter minerals in May last, having discovered them a short time previously—the hexagonal prisms in a very coarse-grained portion of the rock from the Hailstone Hill, and the hecitolite (?) from a new sinking at Deepmoor. Since that time I have made more than 30 sections of this rock, and have detected at least seven different minerals, of which the following is a list: Labradorite, augite, a green mineral probably chlorite titanoferrite, iron pyrites, a brown zeolite probably pectolite, apatite, olivine, epidote, a pale green mineral, undetermined, which forms an amygdaloid, and a light purple mineral which occurs in thin plates in the feldspar; this, I think, is a species of mica. The green chloritic mineral is highly characteristic of the rock which occurs in sheets and bosses in the coal measures, locally known as green rock. At the Hailstone Hill, I have observed a number of veins containing a real zeolite. They are well worth attention; and a careful study of them, both *in situ* and microscopically, has clearly shown them to be contemporaneous with the formation of the rock itself. In some cases I have succeeded in tracing them from end to end in the solid basalt, and find that they terminate in mere points, being entirely surrounded by solid rock. In other instances, however, I have traced veins of red mineral across the joints and columns; and as these were doubtless caused by the contraction of the mass in cooling, the evidence as to their age is tolerably conclusive. The proof derived from a microscopical examination is equally clear, for I find that the veins consist of precisely the same minerals as those forming the compact rock, but with the difference that they occur in larger and more perfectly developed crystals; a fact which may readily be explained by supposing the veins to have been cracks formed in cooling, and then either partly or entirely filled up by the still liquid interior being squeezed into them. The presence of the zeolitic mineral in such abundance is also an additional proof that this is the correct explanation of their origin. Many of my sections clearly show that this mineral was introduced subsequently to the consolidation of the rock, as it occurs in cavities, and also fills up the spaces between the different crystals. In some cases it lines the cavities, having been deposited in layers, differing from each other in color and thickness, precisely like the banded agates. Such cavities and spaces would naturally occur more frequently among minerals which crystallized in spaces large enough to allow them to be formed slowly, and without interfering with each other.

SIZE OF BRAIN IN DIFFERENT RACES.—Dr. J. Barraud Davis in a paper recently communicated to the Royal Society, gives as the result of his investigations upon this subject, the following figures: The average English brain weighs 47½ ozs.; French, 45½; Italians, Lapps, Swedes, and Dutch nearly the same as English; Hindoos, 44 1-5 ozs.; the aboriginal Khonds of India, 37 4-5 ozs.; Chinese and Siamese, 47 ozs. Of the African races, the northern have from 44 to 46 ozs.; the Bushmen 31 to 39; the Kaffir over 48 ozs.,—a greater weight of brain than the average Englishman. The Malays have over 47 ozs. of brain. Unless, however, the calculations were based upon the examination of a large number of skulls of each race, they are not particularly valuable.

NEW PLANET.—On the 17th of February M. Borelly, of the Marseilles Observatory, discovered a telescopic planet, which is the ninety-sixth now known, the orbits of which are between those of Mars and Jupiter. The same was discovered three nights later, by M. Loewy, at Paris.

Amalgamation Compared with Smelting.

The question which is the best process for the beneficiation of silver ores, is frequently asked; but it is one which cannot receive a general answer. Amalgamation, indeed, possesses certain advantages, among which the most important are; its simplicity; its periodical completeness (giving opportunity for comprehensive supervision and exact control); the rapidity with which it produces the silver from the ore; the great saving of fuel it involves; and the greater security it affords (when the amalgamation is cold) in comparison with processes involving the use of lead, for the health of the workman.

The silver in an ore submitted to amalgamation can be obtained and transformed into money in a few days. Very little of it remains in those products which must be worked over again; and hence it is possible almost every week, to calculate accurately how economically the ore is benefited; how much silver is being lost. Indeed, we are able to ascertain daily, by examination of the tailings, the degree of perfection attained by the process, and to remedy with promptness, where remedy is required. Not so in smelting. Here only a portion of the silver is collected by the first operation in the lead; another and larger portion hides itself in matrics, clinker metallic combinations, and slags too poor to smelt, or, at any rate in products which never allow of accurate assays, which must pass through the fire repeatedly (and generally with fresh ores), and which suffer new losses at every process; so that many months may elapse before the whole of the silver, sent at any time in the form of ore to the works is transformed into a marketable product, and a cleaning up, a correct estimate of the percentage of loss, and of the assets of the works are but seldom possible. The contents of the slag from smelting do not give nearly so good an indication of the completeness and success of the operation, as is afforded in amalgamation by the contents of the tailings.

On the other hand, however important these advantages of amalgamation may be, it is never to be preferred as a mode of treating plumbiferous silver ores, nor in districts where fuel is cheap and abundant, and lead has but little value, while mercury and salt are difficult to procure. A proportion of gold or of copper in the ore may also, in many cases, decide the question at once, in favor of smelting. But where fuel is scarce and constantly rising in price; where the ores, perhaps, are difficult to smelt besides, where lead is not at hand, and must be purchased abroad, or where the silver is already chloridized in the ore (hornsilver), there amalgamation is the right thing in the right place, and its use may sometimes save mining enterprise from ruin.

Ores which are too poor in silver to be at once economically smelted with lead, will ordinarily be too poor also for immediate amalgamation. In both cases, a crude smelting must first be performed, the silver concentrated in a rough matte, and the latter smelted or amalgamated, according to circumstances, instead of the original ore. In Freiberg, where both smelting and amalgamation are practiced, the profit of the latter is greater; but it would be unfair to draw general conclusions from this fact, since the poor ores are sent to the smelting works, while only those ores are amalgamated which are sufficiently rich to be treated without concentration. The cost of the preparatory crude smelting of the poor ores, is of itself enough to produce the appearance of inferior economy in that process; and hence the Freiberg figures do not represent a fair comparison of the two methods.

The above is from a series of papers, translated for the *American Journal of Mining*, from the German of K. A. Winkler.

MAN IN THE DAYS OF EOOZON.—Mr. G. Henry Kinahan says: The Biblical record may be sneered at because human remains have not been found except among the most recent of the tertiary deposits. In answer to this, I may be allowed to put forward Col. Greenwood's suggestion; that there is only negative evidence against the existence of man and the other land animals from the earliest periods. "Where," he says, "are the fossil remains of land quadrupeds found? In cavern deposits, in drift and alluvium, in filled-up lakes, in hogs, or frozen up in polar regions. Now all these land mammals are not only modern, but superficial and temporary. They are liable to be washed into the sea; and their fossil contents must be destroyed before they can be redeposited in marine strata."

Mechanical.

THE SMOKE QUESTION.—Mr. G. Holt recently delivered a lecture upon this subject at the Literary Institute,—says the *London Mining Journal*,—in the course of which he spoke of one invention, which he said struck at the root of the evil, and was, “without question, one of the most thorough and scientific yet brought out for the consumption of smoke.” The essential features of this invention are that the bars of the fire-grate are sloping at an angle of 45°, and that the sides and back of the fire-place are also grated, supplying fresh air continually to the hottest part of the fire. The sloping grates admit of the slack being supplied by means of a hopper, so as to avoid the use of doors, and the slope of the bars causes the fire gradually to settle to the bottom as it becomes thoroughly heated, so that all the fresh coal is at the front, and any smoke from the front must pass over the main body of the fire. This scheme seeks to allow no waste carbon to escape as smoke, by admitting air through the fire. There are several collateral advantages with this scheme. The side bars are wider apart towards the bottom of the fire, so that by a better supply of air a greater heat may be obtained. The level portion of the fire-grate at the bottom is movable, and fitted with a lever, which causes it to slide in and out on rollers, so as to let out ashes or, if need be, the whole of the fire into the ash-pit below. Again, the slope of the bars, and the gradual manner in which the slack settles down on the fire, enables it to cake together in masses, which keeps the bars unchoked, and thereby admit more air. Also, from having no doors to open and shut great injury to the boiler by the alternate cooling and heating of the boiler-plates is avoided.

SMOKE.—A great deal has been said about the various plans for preventing smoke, and avoiding the waste of fuel consequent upon it. A writer in the *London Mining Journal* recommends *silver* as a preventive. He says that an official connected with the City of Dublin Steam Packet Company found out long ago that two shillings extra on the weekly wages of the stokers when they did not make smoke, and one shilling fine when they did, made them careful to push the red hot coals in the furnace well back, and feed the fresh coal near the mouth; thereby effectually preventing the making of smoke, and economizing fuel. The company made money by the arrangement.

SAFETY RAILS.—Dr. A. W. Hall, of New York city, has invented an arrangement for preventing the accidents by breaking of rails, which have within the past year caused such frightful destruction of life. It consists in a supplementary rail, inside of each of the ordinary rails. The flange of the wheel passes between the two rails. The wheel has a “tread” inside of the flange as well as outside; but the former does not touch, unless in case of the breaking of a rail. Old rails may be used for the safety rails. The safety-tread may be cast without a chilled face, giving it all the tenacity of soft iron; thereby adding to the safety of the wheel, by lessening its liability to break. The *American Artisan* describes and illustrates this invention.

LEAD FLOATING ON IRON.—Melted lead, which has a specific gravity of 11.5 will float on melted iron, which has a specific gravity of 7. This has been recently explained by Prof. Karmarsch, of Hanover, who finds that the lead when melted forms a hollow spheroid, which is filled with some vapor of lead, making it specifically lighter than iron. In smelting, however, certain ores of iron which contain lead, the lead is found at the bottom, where, owing to its specific gravity, we should expect to find it.

HARD STEEL.—We have already spoken of J. P. Smith's extremely hard steel from pig iron by a new process. The *London Mining Journal* recently received a piece of the metal, with the fractured edge of which, glass was cut into strips as if with a diamond. Attempts were made to fray the edges with different files, new and of the best quality; but without more success than if they had been coconut husks.

SELF-LIGHTING GAS-BURNER.—A new burner of this description, illustrated in the *Scientific American* for May 9th, has a miniature supplementary pipe by the side of the main nipple. This receives its supply of gas from a channel cut from the main supply aperture in the cock partially around its circumference. When the gas is turned on to the main burner, the supply to the supplementary burner is entirely cut off; but when shut off from the primary or principal burner, a small portion escapes through the auxiliary, being lighted in the instant of turning off by the flame from the main burner, in consequence of the rapid spiral of the channel cut in the circumference of the cock, which is simply a “fast” screw thread. In lighting, the jet of gas from the auxiliary tube, when the cock is turned, “jumps up,” and ignites the gas from the main tube. The small tube, of course, burns gas when the main tube is not acting, but the amount thus burned is slight and proves to be far less expensive than the use of matches and other appliances for lighting gas. A bowl or cap protects the small jet from being extinguished by currents of air.

SILVERING HOOKS AND EYES.—A patent has been granted in Bavaria, for the following method of silvering hooks and eyes made of iron wire. The articles are suspended in dilute sulphuric acid until the iron shows a clean, bright surface. After rinsing in pure water, they are placed in a bath of a mixed solution of sulphate of zinc, sulphate of copper and cyanide of potassium, and here remain until they receive a bright coating of brass. Lastly, they are transferred to a bath of nitrate of silver, cyanide of potassium and sulphate of soda, in which they quickly receive a coating of silver.

FEEDING STEAM BOILERS.—The *London Mining Journal* of April 11th, says: As an improvement upon the present mode of feeding steam boilers, Messrs. H. Davey, of Gunislake, and D. Davy, of Sheffield, propose to mount a wheel, with recesses upon its circumference, upon centers in a casing, so as to turn freely; this casing is provided with two openings, one communicating with the boiler below the water level and the other with the steam space. It is further provided with openings to the supply tank. The openings are so arranged that as the wheel revolves the chambers are emptied into the boiler. The apparatus is made self-acting, by arranging the inlets for the water so that it impinges in an inclined direction upon the wheel cavities, causing it to start in the required direction, the motion being further maintained by the weight of water being on one side of the wheel only.

DIAMONDS FOR GLASS CUTTING.—Great care and skill are necessary in selecting the cutting points, because the diamond that cuts the glass most successfully has the cutting edges of the crystal placed exactly at right angles to each other, and passing through a point or intersection made by the crossing of the edges; a polished diamond, however perfect may be its edges, when pressed upon the surface of the glass, splinters it with the slightest pressure; but with the natural diamond the most accurate lines are produced on glass, and their surfaces are so highly furnished that, if ruled close together, they decompose light, and afford the most beautiful prismatic appearance—all the colors of the rainbow flashing from them as from the silvery interior of a pearl oyster shell. Diamonds are also employed to drill points to perforate rubies, and bore holes in draw-plates for fine wire, and also for drilling in hard steel.—*Artisan.*

STEEL ROPES.—Messrs. Howell & Co., of Sheffield, have proposed the use of ribbons of steel in the place of wire for the ropes of suspension bridges. A specimen of this laminated rope, consisting of 48 laminae, 3 in. wide and 1-16 thick, would, according to their statement, require 720 tons to break it, and would not take any permanent set with less than 30 tons per square inch. It would be easy to place each strip over the space to be crossed by the bridge, laying the strips carefully on each other, and when the required section is attained, binding them together with wire or with clips to prevent moisture from entering between them. Such a rope would be stronger, and much more easily erected, than one of wire with the wires parallel over the span. And it would be much more rigid than a wire rope of twisted strands, and probably also more durable from its greater compactness. *Engineering.*

Scientific Miscellany.

CHEMICAL GEOLOGY.—David Forbes, F. G. S., delivered a lecture on this subject before a large audience on Feb. 25th. He considers that a combination of the Plutonian and Neptunian theories will best account for the phenomena that present themselves to the geologist. He showed that silica occurred in nature as an igneous product in recent lavas; that it occurred as an aqueous product in different forms deposited from solution; and as a gasolytic product in tubes from the decomposition of fluoride of silicon. He believes that both sedimentary and eruptive granites exist. He considers that the whole of the earth's constituents, being once in a state of vapor, arranged themselves in zones according to their densities; and that consequently the central nucleus of the earth must contain an accumulation of the denser metals and their compounds. The fact that while the mean density of the earth is about 5.4, the density of the exterior crust is only 2.75, supports the hypothesis. At the moment of solidification, the earth must have formed a true sphere; but the outer crust becoming subject to volcanic and other forces, the surface would soon be broken up into mountains and valleys, and subsequent aqueous action would produce other changes in the first formed rocks. Metamorphic action, promoted by heat, pressure, chemical action, aqueous or gasolytic agency, or all combined, would continue to go on, and would produce the condition of things which we now find. *The Quarterly Journal of Science* gives an outline of the lecture, which we condense as above.

PANGENESIS.—Mr. Darwin has recently published a new work, in two volumes, on the “Variation of Animals and Plants under Domestication.” *The Popular Science Review* speaks of it as “Mr. Darwin's masterpiece of scientific essayism;”—and closes its notice of the work by calling attention to Mr. D's new theory of “Pangenesis,” giving a brief outline of it in the following words:

The tissues of the body in both male and female (plant and animal) are constantly throwing off minute atoms, which, under favorable circumstances, are capable of reproducing the particular tissue from which they are derived. These accumulate in the ovum on the one side and zoöperm on the other, and in the union of these two the elements of the tissues and organs of the two individuals combine. Accordingly, therefore, as one or the other of these elements predominates, the resultant will resemble the male or female parent. But it sometimes happens that the two antagonize each other; and, when this occurs, a certain number of the molecules of the early ancestors, which have lain dormant like so many “statohlasts,” come into play and produce reversion.

PLANTS AND ANIMALS.—Prof. Huxley is this year giving his lecture as Hunterian Professor, on the Invertebrata. He does not believe that a sharp line can be drawn between plants and animals, but would regard man and the magnolia tree as extreme terms of one long series, diverging on the one hand to the vegetable, on the other to the animal kingdom.

ORIGIN OF BACTERIA.—Frau Luders, a German lady, and a microscopist, has proved that *Vibrio* are produced from the spores of various fungi. Prof. Hensen of Kiel, supports her assertions. She thinks that the blood of living animals contains these organisms; but that they remain quiescent until, after death, putrefaction commences. Prof. Hallier, a great authority upon such matters, has recently identified a distinct form of fungus in the blood of typhus fever patients, and another in vaccine matter, etc.

ACTION OF THE INDUCTION CURRENT UPON PLANTS.—M. Blondeau has carried still further the experiments upon the vegetable organism to which we have before alluded. The ripening of fruits was hastened by the current. Apples, pears and peaches which had been acted upon by it, reached complete maturity long before other specimens from the same tree which had not thus been operated upon. French beans germinated more rapidly when thus treated, and the plant was more vigorous. Singularly enough, some of these beans germinated downwards; the cotyledone remaining in the ground, and the roots rising in the air. M. Blondeau infers that the embryo has, like a magnet, its neutral line and its two poles.

DISSOCIATION.—M. Dührée says that a hydrated salt has for each temperature a tension of dissociation which is measured by the elastic force of the aqueous vapor which it emits at this temperature. A salt becomes hydrated, when the tension of the aqueous vapor contained in the atmosphere is greater than that which the salt emits at the same temperature. Efflorescence results when the tension of the water-vapor of the salt is greater than that of the aqueous vapor existing in the atmosphere.

CRYSTALLIZATION.—M. Auguste Bersch has found that Epsom salts (sulphate of magnesia,) dissolved in beer, with a small quantity of dextrine (artificial gum), and applied to a pane of glass with a sponge or brush, will, on crystallizing, produce designs identical with those fantastic but symmetrical figures which may be seen of a frosty morning upon the window panes; with this improvement, however, that the liquid may receive any color whatever, at the option of the operator. M. Kuhlmann, on being apprised of the fact, conceived the idea of going a step further, and transferring those fairy-like creations to stuffs and paper. For this purpose he first got the crystallization on sheets of iron, on which he afterwards laid one of lead. By means of a powerful hydraulic press the minutest details of the figures in question were durably imprinted on the soft metal, and a copy of them in relief was then obtained by galvanoplastics. But here another difficulty arose. In the impression of cotton stuffs the pattern must be continuous; whereas in M. Kuhlmann's plates the lines at one end would clearly not coincide with those at the other, so that disagreeable interruptions would be caused in the printed designs. This obstacle, however, has been overcome in a most ingenious manner by effecting the crystallization on the cylindrical surface of a roller. A slight rotatory motion imparted to it will prevent the liquid from accumulating at any particular point before it has evaporated.—*Galignani.*

BLOW-PIPE REACTIONS.—Capt. W. A. Ross, R. A., has detected some peculiar blow-pipe reactions. Having fused a borax bead in the usual way, he charges it with the substance under examination, and then blows the bead into a small bubble or vesicle of extreme thinness. After standing for some hours, the vesicle exhibits under the microscope a peculiar crystalline structure, often of great beauty; and as this structure apparently varies with the nature of the dissolved substance, it promises to become of value in blow-pipe analysis. “Every metal, with its salts, appears like a kind of mineralogical kaleidoscope, throwing its crystallization apparently at random into the most elegant shapes, each of which must be made to yield its atom of information as to the source of all.”—*Quarterly Journal of Science.*

VOLUMETRIC DETERMINATION OF ACETIC ACID.—The fact that acetate of soda gives a violet tint to the litmus paper, makes this determination by means of hydrate of soda solution difficult; as it prevents the chemist from knowing the exact moment of neutralization. The difficulty is obviated by employing tincture of curcuma as a test. In the presence of free acid it remains yellow, but it turns brown immediately when the acid is neutralized.

SPECTROSCOPE.—Prof. Oshorn, of Lafayette College, has so modified the spectroscope that he can detect, from a room many hundred yards distant from a furnace, the sodium in the coal or decomposed fire-brick proceeding from the furnace mouth; also any lime or potash that may be present.

Plaster of Paris---Gypsum.

Among the many numerous articles of importation to this State, is gypsnm or plaster of Paris, of which some 1,500 barrels is employed here monthly, all of which has heretofore been imported. It is gratifying to note, in the history of our industrial progress, the fact that a discovery has recently been made on the peninsula of Lower California, which will place us independent of Eastern shippers for this commodity, and enable us to lay down the article in this city cheaper than it can be obtained in the city of New York. The location of the discovery alluded to is near Loreto, opposite Carmen Island, and within half a mile of a good harbor. The deposit is said to be unlimited in extent, and the gypsum of a quality nowhere excelled. It was first found upon the ranch of Mr. Newton, from which it has been traced to the adjoining property of Capt. Hyde. Capt. H. is an American, who has been for thirty years a resident of that part of Mexico; Mr. Newton is also an American, and until recently a resident there for many years. Aside from its present value, this discovery is almost invaluable with reference to its probable future demand as a fertilizer. A considerable shipment has already been received here, and a quantity has been ground at the reduction works of Mr. Howland, on Market street, and converted into stucco work; which experiment has given a full and practical proof of its value, even for its most difficult employment in the arts.

Gypsum is a hydrated sulphate of lime, consisting of sulphuric acid, lime and water, and may be represented by the following formula: $\text{CaO}, \text{SO}^3 + 2\text{HO}$. It is met with in greater or less abundance from the Devonian, through the carboniferous, even up to the alluvial deposits. Its production is supposed to be due to the decomposition of iron pyrites and carbonate of lime in juxtaposition. It is found wherever sulphuric acid is generated and comes in contact with limestone. It is usually more or less colored by oxide of iron or other coloring matter, occurring of all shades from a transparent white, to yellow, brown, red and sometimes black.

Gypsum is extensively used for making plaster casts and for stucco, and as a fertilizer. When used as a plaster of Paris for stucco, etc., it is first ground to a fine powder, and then calcined by being placed in open kettles, set as if for boiling water. This process is technically called "boiling," and by it the water of crystallization is driven off. When in that state, if wet to a pasty consistency and placed in a mold, it most accurately takes the form of the mold, and becomes indurated in a few moments. It can be so prepared, however, as to delay the indurating process for hours instead of minutes. No art has yet been devised by which its powers of induration can be repeated after being once used.

This material is extensively used in the Eastern States and in Europe as a fertilizer. Its fertilizing effects are too well known to need any extended notice. The exhaustive system of farming practiced in California will doubtless soon create a large demand for this product, and it is a matter of no small congratulation to learn that it can be furnished on this coast in unlimited quantity, of superior quality and at a price about one-third less than that at which it can be delivered in New York. Its greatest value as a fertilizer is for grasses and root crops, although it is used extensively for grains. When used for grains or grasses, it is pulverized and spread over the surface of the ground when the weather is wet or the earth moist; for roots it is placed in the hill at the time of planting. The value of peat ashes for manure is chiefly due to the gypsum which they generally contain.

Alabaster is a very finely granulated variety of gypsum. Gypsum is quite variable in character, occurring compact, foliated, fibrous, highly crystallized and often transparent, like mica—in which latter form it is often mistaken for the latter mineral, and it very closely resembles.

COCONUT FIBER FOR UPHOLSTERY.—

Nature has ever been lavish in her provisions for the supply of man's physical wants. Food, both animal and vegetable, nuts and fruit, are found everywhere and in every variety, ready furnished for all, savage or civilized. But while the necessities for existence are amply provided, the comforts and luxuries demanded by each advance to a higher civilization, have often taxed the ingenuity and intellect of man, to the utmost, in turning the raw material to good account.

The savage kills and eats, as one of the lower animals preys upon another. Civilized man appropriates hoof, hide and hair,—bones as well as body and blood. The Hottentot, with a degree of intelligence but little above the ape, cracks the coconut for its milk or meat. But he who brings shell as well as kernel into subserviency to his wants, has a harder nut to crack.

Mr. John Perry, of this city, by a process entirely new, is now engaged in the manufacture of the fiber of the coconut to be used for mats, matting, beds, sofas, lounges, and all upholstering purposes. Various, and many fruitless attempts have been made to find a cheap and durable substitute for feathers and curled hair for chairs, cushions, and mattresses, at the same time obviating the objections to pulu, shavings, soap root and other material, on account of dust, weight, offensive smell and liability to breed vermin or insect life. Mr. Perry is fully confident that he has found in the fiber of the coconut, a material possessing all the requisites above mentioned, without the objections; while in point of lightness, purity, durability and elasticity, it stands unrivalled; being entirely freed, in the process of preparation, from all deleterious vegetable matter, and consequently not liable to rot after years of exposure to dampness. With the view of being able to supply all the demands of the trade for this new textile, Mr. Perry has purchased a half 50-vara on Chestnut street, between Polk and Larkin, and put up all the necessary buildings and machinery for conducting the business on an extensive scale. Thousands of dollars have been expended in fitting up the establishment. One large tub, say forty feet in circumference, with some fifty stamps for reducing the fiber, was built by E. O. Hunt of this city, at a cost of some \$1,500, saying nothing of the labor and expense required for the complete equipment of the whole. We have had the pleasure of going through all the different departments of the manufactory. We examined the various rollers, tubs, stamps, pickers, and other fixtures, with the view of giving the whole process in detail; but owing to the difficulty, in the absence of illustrated cuts, of making the subject clear to the general reader, we dismiss it for the present, hoping that all who are interested in this line of mechanical industry, will avail themselves of the privilege of a visit to the establishment and a personal examination of the prepared fiber, together with the whole process of its manufacture.

The coconut is procured at Honolulu, Tahiti, Fanning and other neighboring islands, in any desirable quantity, and is brought by ship-loads to this market. While the fiber has been extensively introduced into England for upholstering purposes, Mr. Perry, we believe, was the first to invent a process by which the raw material is taken through all the different stages of preparation,—a process *sui generis*,—consisting of a series and combination of machines, novel alike in both construction and arrangement.

A NEW LUBRICATING OIL, of eastern manufacture,—said to be a combination of mineral and animal oils,—has been introduced here by A. C. Dietz & Co., manufacturers and importers of machinery oils, coal oil, lamps, etc., 521 Front street. The Excelsior Machine Oil, we understand, has been brought into general use throughout the Atlantic States,—where it has been pronounced superior, for lubricating purposes, to the best sperm or lard oils,—being represented as 75 per cent. cheaper, wearing longer, cleansing the machinery from all accumulated gum, and leaving the machine after wiping, perfectly bright and clean. See advertisement.

Foundry Work—The Pacific.

A renewed activity has become manifest in Mexican mining affairs since the comparative quiet secured in that country by the reestablishment of Juarez. Satisfactory results are also being realized. This city is beginning to feel the benefit of such an improved state of affairs, in the consequent orders which are coming in for machinery, etc. The Pacific Foundry is now shipping, for that destination, a large amount of irons—such as doors, grate hars, stirrers, etc., for roasting furnaces; also a number of Varney Pans and Settlers, with shoes, dies, etc. These castings are chiefly ordered from Sonora, and are to be employed in enlarging and refitting existing works, which have been suspended during the late political disturbances in that country.

The same foundry has just sent off a 10-stamp mill, complete, for the Pioneer Mill Co., at Warner's Diggings, in the northern part of Idaho Territory. Several smaller mills were sent to that district from the same foundry last year, and a large amount of machinery is also finding its way thither from the East. This promises to become one of the finest mineral regions on the continent as soon as the Pacific railroad and other accessories to travel and transportation, which will be connected with that great enterprise, are fully in operation.

A mill, engine, boiler and pair of hoisting reels for the Turner's Flat Gravel Co., is in course of construction; also the necessary gearing to drive a 6-inch "American Submerged Pump," which, it will be recollected, was fully noticed and illustrated in our issue of April 25th. This experiment will give that new invention a fair test of its utility and capacity for a mining pump.

The Pacific folks are putting up one of their new engines—the Hartford, Wright's Patent Variable Cut-off—at the Golden Age flouring mill of D. Conroy & Co. This engine has a 22-inch cylinder, with three feet stroke. One of these engines was put up six months ago at the Crown Point mine, which has thus far given the fullest satisfaction. A duplicate of the same has been ordered for the Pacific Mill, at Silver City, which is now being built at the Pacific Foundry. One of the same engines is also being built for exhibition at the forthcoming exhibition of the Mechanics' Institute.

This is a new steam motor which has recently been introduced upon this coast, and which appears to be giving much satisfaction wherever it has been used. We shall soon give an illustrated description of the engine. They are also putting up the machinery in a stern-wheel steamer, recently built for Capt. Wiley, and now lying at Long Bridge, and intended for the grain trade in the waters about this harbor. The same parties have also recently built and put up an air pump at the Empire and Imperial shaft, at Gold Hill. This pump is sixteen inches in diameter of bore, and is employed to force air into the shaft for ventilating purposes. The *Territorial Enterprise* of the 27th inst., speaks of this pump as "working exceedingly well," and that by its aid "there is at present no visible or known reason why the drifts may not be driven through the ledge without further hindrance."

There is also being built at this foundry, for the Florida mine, near Austin, an 8-inch bore Cornish lift-pump, of six feet stroke, with all the gearing, etc., to drive it, with 500 feet of discharge pipe. This pump is to be completed within one week from the time the order was received; such haste being required by the exigency of matters at the mine, where the water has recently gained so rapidly on their present pumping works as to drive the workmen from the lower drift, where the company is now obtaining their best rock.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows: BOYD SILVER M. Co.—May 26th. Capital stock, \$1,600,000; 1,600 shares, \$1,000 each. Trustees: Wm. M. Lent, J. W. Mackay, Geo. Hearst, Joe Clark and David Fay.

A NEW EXPLOSIVE COMPOUND.—Mr. Hefenegger, of this city, has submitted to our inspection a new explosive compound which he has recently invented, and which appears to merit no little consideration. This compound differs from ordinary gunpowder, in being made more powerful and rapid in its action, in both of which respects it very much resembles nitro-glycerine and the so-called "giant powder;" but unlike either of those compounds, it is applicable for use as rifle or gunpowder. In some experiments which were made a few days since in our presence, a block of iron, with a bore in its upper surface, was charged with six grains of Hefenegger's powder and fired, with a small anvil weighing six pounds placed over the bore; the anvil was thrown from its seat, while two ounces of gunpowder did not move the anvil. Sixty grains of the new compound (one-eighth of an ounce), threw the anvil forty feet into the air. A 4-inch shell, with a chamber only one inch in diameter, was charged with half an ounce of the preparation, and burst into numerous fragments. Common gunpowder could not have hurst such a shell.

This compound is perfectly safe to handle and transport, and undergoes no chemical change or deterioration by the lapse of time. The preparation is made from dry compounds, and can be prepared of any desirable strength, so as to be used as a detonating powder or for common gunnery. The inventor has also a self-igniting match which is made upon the spot, by simply placing a few drops of a liquid preparation upon any combustible substance, such as paper, linen, cotton, etc. The liquid can be so prepared as to ignite spontaneously in from five to fifteen minutes, or longer if desirable. All the experiments made were accomplished by this self-igniting liquid, no ordinary match being used in firing any of the charges. We have no time or space to-day to go into any detail with regard to the use or value of these new compounds, but shall refer to them again in a future number. The inventor has taken the necessary steps to secure letters patent for his invention through the MINING AND SCIENTIFIC PRESS PATENT AGENCY, and would like to secure the aid of some capitalist to develop the invention for an interest in the same. Any person desiring further information with regard to this invention can obtain the same by inquiring at this office.

ARTISTS' EXHIBITION AND SALE.—The artists of San Francisco will hold a sale on Thursday evening, June 4th, at the auction rooms of Messrs. Duncan & Co., Montgomery street. As they participate generally, the contributions to the sale, which will partake of the nature of an entertainment, will be choice, as well as varied and extensive; so that all will have an opportunity to fully gratify their taste. If we may judge the productions of others from the artistic display and variety in the form of landscape, lake, river and mountain scenery, recently seen at the studio of D. H. Woods, on Kearny street, this will doubtless prove one of the finest exhibitions of the kind ever presented in this city. The California scenes cannot fail to attract attention, particularly those embracing views of the Stanislaus, Tuolumne and Bear rivers. Some of these are not only beautiful and picturesque, as to grouping, coloring and perspective, but exceedingly life-like and true to nature, bringing back to one the life of other days and its sweeter memories.

COLLEGE COMMENCEMENT.—The first commencement at the City College, corner of Stockton and Geary streets, took place last evening. The exercises were held in Calvary church, Bush street. The degree of A. B. was conferred upon two candidates. These have completed the full course of four years, and are the first graduates of the institution. An address was delivered by Rev. Dr. Woodbridge, of Benicia, and a poem read by Rev. F. Buel. The occasion was an interesting one.

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Chronicle, May 16th: The I X L Company have decided to turn to and take ore out of their mine—the first quality to be worked, and the second to be laid aside for future operations. It is about time this company exhibited some signs of life. The second class ore of the I X L mine will pay more than the best rock taken from many of the rich mines of Nevada.

A shaft is to be sunk on the Summit Ledge, the extension of the Pennsylvania, in Raymond District.

Same of 23d: At no time has the prospect been so flattering for Alpine as the present. In the Silver Mountain District several of the best claims in the county are being worked with energy. The work progresses steadily, night and day. The I X L Company are getting out ore; the Pittsburgh have struck one of their ledges and are now sinking an air shaft. The company are negotiating for the purchase of Whiteside's mill; the Pennsylvania tunnel is going ahead finely; this week it passed through a stratum of quartz showing ruby silver. This company are liable to strike their ledge at any moment. The prospects of the Rippon are favorable. The Mountain Tunnel is in over 1,400 feet, but has not yet cleared the hard rock. The rock is hearing more sulphurets. There are no idle men in Silver Mountain. The Mount Bullion Company are making fair progress with their tunnel, and the same may be said of the Imperial Company. At Monitor there is very little doing. There is a prospect that work will shortly be commenced on the George Law claim at Markleeville. The St. Helena Company, near Markleeville, have levied an assessment. In the Raymond District the Illinois-California Company are pushing ahead with their tunnel, and work has been commenced on the Summit claim.

Miner, May 23d: The Morning Star shipped for San Francisco this week eight sacks from the lower level of the mine. This ore is for smelting in the Haskell furnace, one of which it is the intention of the company to erect, if it should succeed as is anticipated.

On Wednesday the Pittsburgh Company completed negotiations for the purchase of the Whiteside mill. The mill is a good one of two small batteries, with pans, settlers, and all fixtures complete, and the price paid \$2,500, is only a fraction of its worth.

At the Mt. Vernon mine on the Napoleon lode between Antelope and Slinkard valleys, they have for several weeks past been drifting on the ledge in ore, and have a vein from 8 to 10 feet in width, the full body of which will go from \$30 to \$35 per ton.

Amador County.

Ledger May 23d: The Oneida, with its 60 stamps, is not allowed to remain idle a moment. The works at the mine are now in perfect order, and they experience no difficulty in keeping the mill supplied with paying rock. The last clean up was good. . . . The quartz now being taken out of the Couey & Bigelow mine proves richer the deeper they go. The mill, 26 stamps, is kept in operation day and night.

Butte County.

The Oroville *Record* of the 16th says: The owners of a quartz ledge near Dogtown, on the west branch of the Feather river, while prospecting about two weeks since, struck a pocket, and in less than two hours took out \$1,200.

Calaveras County.

San Andreas Register, May 23d: The new mining district above El Dorado is attracting much attention. Bean & Smiley are, we learn, taking out hundred-dollar rock. The Lodi claim has a tunnel now in about 150 ft. From this tunnel they have taken a large quantity of quartz, which pays them about \$100 a ton. Their last clean up was seven pounds of thoroughly retorted amalgam. The assay shows that the gold from this lode is worth \$18.78 an ounce. The Washington claim, some two miles from the Lodi, is said to be exceedingly rich. We predict that a few months hence, there will be a large and prosperous town in this vicinity.

H. Smith, J. Guider and John Kelley have struck a vein of dirt near the Brewery, in town, which is said to be exceedingly rich. They pick up pieces of gold weighing, some of them, as much as \$3.50, and have taken out of the gravel \$17.50 in a pan of dirt.

The Homestake Company at the Junction, Chili Gulch, have struck gravel which is paying them well. They have got as high as \$15.75 to the pan of dirt.

Nevada County.

Transcript, May 21st: The Badger Hill and Cherokee Gravel Mining Co. has been incorporated. The capital stock is \$250,000, and the company is designed to work the blue cement channel running through Badger Hill.

Same of 23d: A ledge has recently been opened by Mr. Stede, just beyond the establishment of Cashin, Kent & Co. The vein is large and the rock looks fair. The Sneath & Clay mill, recently leased by Mullory & Emory, will commence crushing rock from the ledge in a short time.

The Potosi mine on the ridge above Gold Flat, near the Wigham mine, was last worked by a perpendicular shaft, but has remained idle for some time past. Thos. Mien and others have commenced sinking a new incline higher up, for the purpose of opening the ledge.

24th: At Moore's Flat, the severe winter, has somewhat interfered with mining operations, but the hydraulic companies have all been washing for some time past. They have not cleaned up yet.

The Kentucky Co. had their pump broken lately, and their shaft filled up, delaying the prospecting. They have the large huckets at work, and will soon have the shaft clear.

25th: The North Star mine still continues to yield rich ore. At Findley's bank, this morning, we saw two pieces of ore from the mine, one of which weighed 46½ pounds, the other probably about 40 pounds. Rich, heavy sulphurets, mixed freely with gold, could be distinctly seen through the pieces.

27th: The Boston Co. has located 1,200 ft. of ground on Steep Hollow, near Lowell Hill, for hydraulic mining. The ground extends from the Sacramento claims to the Lower Hill reservoir.

Gazette, 26th: The Sneath & Clay mill which has been idle for the past year, was started up again yesterday. Messrs. Emory & Mulloy, the lessees, have everything in first rate order.

The Buckeye Co., formerly the North Star Mining Co., on Rock Creek, started up their new steam hoisting works on Monday, the 18th inst., and are now hoisting the water from the claims. They will commence taking out gravel this week from the 215-foot level.

Grass Valley *National*, 19th: Since the Powning Bros. leased the Rannels ledge, they have sunk a shaft and found a good prospect. Three loads of rock, crushed by the Hitchen's Bros., at Larimer's mill a few days ago, yielded about \$100.

Placer County.

Dutch Flat Enquirer, May 23d: We learn that the Dutch Flat Co. in drifting from the bottom of their shaft, have disclosed a body of cement in which gold in paying quantity is plainly discernible.

Plumas County.

Quincy National, May 16th: Messrs. McGee & Thompson of the Mammoth quartz mine, intend to commence crushing on the 1st of June. They have completed their tunnel, 1,600 ft., which taps the ledge at the Traugh chimney, 300 ft. below the old level, and 700 ft. below the surface. The ledge averages about six ft. wide of pay rock, some of which is remarkably rich.

The Crescent commenced running sixteen stamps on the 8th inst.

Same of 23d: Messrs. O'Neill & Van Norden have struck some new ground in Nigger Gulch, that prospects well. It seems to be an old channel, and "pans from the top down"—some 15 ft. The company are at work upon a ditch, to bring in the water from the Elizabethtown Flat.

North Fork items: Tom Orton is working with a rocker, and is making an ounce per day to the hand. . . . Joe Hickman panned out 12 ounces in two days, last week. . . . Thompson & Mather have their ditch completed, and will commence work on their claims immediately. They have big prospects. . . . Mr. Drake is making an average of six dollars a day to the hand. Water is plenty on Red Rock and the miners are all doing well. . . . Wagner & Ferguson, at Dutch Hill, had two days' run at the time of a heavy rain, and cleaned up \$800. . . . A new claim in Butt Valley, owned by G. W. Miller, is paying eight dollars per day to the hand. . . . The boys at Barker Hill are preparing to haul dirt, and expect to make big pay.

Siikyou County.

Yreka Union, May 23d: The miners on Humbug are about through with ground sluicing for this season, and most of them have commenced to wash up. We understand the yield is generally satisfactory.

Mr. Steele informs us that he succeeded in securing below some aid in opening and working the "steamboat" claim on McAdam's Creek.

Sierra County.

Downieville Messenger, May 6th: The Independence Quartz Mining Co. are putting up a new mill, in a situation where there will be no danger from snow slides. The mill will be in working order before winter sets in.

At Camptonville, McLellan & Co. and Hugg & Co. are taking out about \$1,000 a week each from their claims below town.

Poverty Hill letter: P. Cunningham, of the Old Paddy Bull claims, from present indications, will take out about \$25,000 this season. Union Hill, Messrs. Miles & Co. are taking out good pay.

Letter from Seale's diggings: The bedrock tunnel of Cox & Co. is still progressing. . . . The Boice Bros. are preparing to blast their bank of gravel which is hard and rich. . . . The hedrock tunnel of Laferty & Co. on Gold Run is being driven ahead as fast as two shifts of good workmen can be expected to run in passable rock. . . . The Kingdon Bros. on Poverty Hill have struck a streak of gravel far richer than ever before found on the hill.

Same of 23d: Letter from Forest City: Mining here continues about the same. The Live Yankee, as usual, has quite a comfortable weekly yield. The Young America is, I think, improving. The Adella, at Rock Creek, I understand, gives first rate indications. The Old Union quartz claims at French Ravine, that used to pay so richly, has been purchased by J. W. Moyle and several other gentlemen. The mine will be immediately reopened.

The Brush Creek Mining Co. at the Mountain House, is going ahead energetically. They employ quite a number of men.

Sacramento County.

Folsom Telegraph, May 23d: Willow Spring Hill is still yielding its thousands. The claims in the hill which were supposed to be worked out years ago are richer than ever, and are likely to continue so, from present appearances, for many years to come. A one-fourth interest in a claim on the hill was sold a few days ago at \$1,700.

Tuolumne County.

Sonora Democrat, May 23d: At Brown's Flat, the Mississippi claim cleaned up 46 ounces last week, six men's labor.

The New York claim cleaned up 16 ounces during the same time.

The Ophir company are extending the main flume up the creek to their claim.

A gentleman from Big Oak Flat informs us that the Rattlesnake mill was started last Monday, and will be kept running steady. Men are working night and day, in the mine, and very fine looking rock is being taken out.

Yuba County.

Appeal, May 20th: George Leland writes from Brown's Valley, that the Rattlesnake has struck within a few days very rich quartz in two of their pay chimneys, nearly at the same time. The quartz resembles more than I have ever seen before, the rich quartz of Grass Valley.

Same of 21st: Yesterday the Pennsylvania Co. shipped five tons of sulphurets to the Grass Valley sulphuret mills, which are expected to yield from \$200 to \$400 per ton.

ARIZONA.

Miner, May 9th: In Walker's district, Poland & Pierson have recently worked in an arastra, 15 tons of Benicia rock, which paid them over \$400. The ledge is not a large one, but all the rock in it pays something. They have several tons more now on hand, which they will work soon. . . . A French has been working ore out of his Tie-Tie, and is well satisfied with the result of his last clean up. . . . R. Winning and McWilliams will immediately start their arastra to grinding Deposit rock.

In Hassayampa district, the Chase mill is prepared to run, and teams are now hauling ore from the mine to the mill. Work upon the tunnel has been commenced. . . . Roddick & Feland in the Chance lode, are hoisting very rich silver rock. The placer mines on the creek are doing well.

In Turkey Creek district, work upon the Gross lode is being vigorously prosecuted, by Messrs. Slack, Linn and Shupp.

In Walnut Grove district, as soon as the planting season is over, work will be started upon several rich mines.

Quartz mining is at a stand still in Big Bug. . . . The companies engaged in placer mining are doing well. All winter and spring they have made, on an average, from four to ten dollars per day to the man.

Jim Thomas has sold his interest in the old Mexican gulch, to a company of Coloradans.

We have heard it intimated that several mills that are lying idle in Yavapai County will soon be set to work.

Recently, at the Big Bug mill, William Gavin built a small arastra, which he run with a small turbine wheel of his own

make. He put into the arastra about three panfuls of tailings, which he picked out of the creek, ground them for three hours, and got \$11.66.

In Weaver district, the Mexicans are still working in the old diggings in the vicinity of Weaver.

In Wickenburg district, work will soon be commenced on the first extension east, of the Great Vulture Lode. They were at latest dates getting very rich rock out of the tunnels. Their mill would be ready to start soon.

Little & Taylor's hydraulic claims, on Lynx Creek, about eight miles east from Prescott, have been paying well, and their owners are well satisfied. Last week, three men in five days, took out \$145.50.

COLORADO.

Denver News, May 6th: About 25 mills, averaging 18 stamps each, are now running constantly in Gilpin county alone. Besides these are the Peregrine mill—the new 12-stamp mill just erected by Mr. Miller; and 20 in the old Eagle mill, by Terry, Smith & Co. Then there is a scheme afoot for building a 40-stamp mill on North Clear Creek; another for a 100-stamp mill at Idaho; and the latter part of the summer will probably see 12 or 20 stamps put into the old Tiger mill. There is hope that the Narragansett mill—40 stamps—will again run before long. Black Hawk will be producing ore by July. Consolidated Gregory Co. are getting to work. The Bohtail confederate pump is at last in good shape, so it is not too much to expect that next August will see 800 stamps in constant use in Gilpin county, producing \$286,000 per month. It is probable a Kenyon mill, of capacity equal to 40 stamps, will be erected at Idaho soon. This is also the intended site of a new 100-stamp mill. Along the creek above Idaho, far more activity than ever before is now observable. The Alden, Syracuse, Fairmount, Piasa, Lincoln, Boston, Colorado and other companies will continue the opening of new mines. Two or three mills are doing very well at Empire.

In Boulder county it is the same story. The same holds true of Park, Summit and Lake counties. New discoveries of both gold and silver lodes have been made within a few months in Park and Lake, and especially to the latter is there likely to be a grand rush. Great preparations are making to work the placers of this and Summit more systematically than in former years. The placer mines of Colorado will produce a million dollars' worth of gold in 1868. In Summit, reduction works will be multiplied this year. On the whole the mining outlook is better for 1868 than we ever knew it. . . . The Colorado Co. is developing the National Treasury lode, and have opened a vein of ore three ft. wide at a depth of 52 ft. . . . Mr. Collum is taking out a fine quantity of ore from his lode on Bear Creek. . . . Mr. Slawson is tunneling for the Potosi lode. . . . Mr. J. W. Partridge informs us that he is to commence work on his copper mines near the South Boulder at once. He has made contracts with the Union Pacific Railroad, and other roads, for conveying his ores.

Central City *Herald*, May 6th: A little party of miners cleaned up a pound of the clean Clear Creek dust on Saturday evening last. They struck a rich streak from which they took \$40 in two hours. . . . Fred Horn, who owns the gulch claims above and below the Wright mill, showed us the result of a three days' run, three men. The result was at the rate of \$6 per day to the hand. . . . Charlie Tyre is working in the Golconda lode, in Spring Gulch, Clear Creek, and is running the ore in an arastra. He is taking out \$175 per cord in gold, and also saving a good deal of silver. . . . Pullerton & Conway are running the Holman mill, north of Chase Gulch, on wall rock and tailings, with good results. . . . Fred. H. Conant resumes work next Monday on the Adaline G. M. Co's claims, Central City. . . . Mr. Borham and the Miller Bros. have leased the Rogerson property on the Bates or Hunter lode, and commenced sinking a new shaft. . . . The Black Hawk Co. have commenced hoisting material from claim No. 1 Gregory, and also have made an improvement in their shaking tables. The company are running 80 stamps on custom ore. . . . The miners on South Clear Creek took out six pounds last week. One hundred miners are at work on the creek, all doing well, and 500 more men could do equally as well. Joe Lagoo & Co. have struck good pay, and Clifford & Co. struck ounce diggings on Friday last.

DACOTAH.

Cheyenne Argus, May 6th: In regard to the Sweetwater mines, we have received from parties writing to their friends in this city, information on the whole very satisfactory. Several lodes have been sunk on during the last two or three months, and the indications are favorable. The Atlantic bids fair to eclipse any gold mine on the

continent. One company on this lode have sunk to a depth of 75 ft., and the body of pay ore varies from 18 to 19 ft. in width. The ore is expected to average \$50 to the ton.

In gulch mining, very little progress had been made. The miners had, however, commenced washing on one creek near South Pass City, with good results. One company is making from \$15 to \$20 a day to the man.

IDAHO.

Owyhee *Avalanche*, May 16th: Trask & Son have turned Jordan Creek out of its old bed and are blasting rock to deepen their tail-race. The ditch that will supply the arastra is completed, and the water-wheel ready for putting together. It is expected that the arastra will be ready for operation about the first of June. The Whisky boys are engaged in preparing for the erection of a whim. The ledge has been traced north from the main shaft several hundred feet. Work will be resumed in the Omega in a few days. Parties are at work sinking on the Sotoma. It is said to prospect well. On the Poorman, a splendid triple shaft is now completed to a depth of 45 feet, and will be used for the main hoisting shaft upon the arrival of the steam engine, now on the way. Work has been resumed on the Calaveras. The north shaft on the Woodstock is now down 25 feet below the level of the tunnel, and shows 20 inches of solid quartz, with smooth casings. The ore is very rich in silver, and in much of it gold is plainly discernible. The ore is divided into two classes, one of which, it is thought, will yield \$800 per ton. The Woodstock Company are using the "Giant Powder," and speak very highly of it. On the Minnesota, the south shaft is down some 90 ft., and the north shaft 60. The Oro Fino Company are at work, although they cannot operate advantageously till their hoisting works arrive. In one place, recently struck, the ledge is from 7 to 8 feet wide, and good pay rock. On the Ida Elmore, several hundred tons of ore are now ready for hauling. The ore is of almost fabulous richness—much the same as the Golden Chariot. We noticed car load after car load of glittering ore coming out of the Golden Chariot. Much of it is so rich that it is hoaxed up to prevent visitors from carrying it away. Five large ox teams were engaged in transporting it to the Sinker mill. A large space is being graded away where the steam hoisting works, which are expected to arrive soon, will be placed. Some parties have obtained the privilege of washing the refuse dirt at the Golden Chariot dump, and are making good wages thereat.

The *Statesman* of the 9th furnishes the following from Alturas county: The Casco Company are nearly ready to commence running on their Wide West rock. The Lucy Phillips Company are busy getting out timbers at Yuba for their 20-stamp mill, now on the way from Umatilla. The Idaho Company are pushing through their new tunnel. Chas. Woodward has his new mill about completed, and will commence crushing as soon as animals can get into Yuba. This will be in a week or two. Two double arastras are running at Rocky Bar, and have all the \$50 rock they can crush. Two others will soon be at work. Placer mining is being vigorously carried on. Water is plenty.

MONTANA.

Helena *Post*, May 9th: Floyd, Bateman & Co. have completed their hydraulic works on Ten Mile Creek above the cañon. They have 600 in. of water with 50 ft. pressure. The average pay of the Bateman claim last year, when worked by a ground sluice, was \$10 per day to the hand; its present yield is about \$30 per day to the man.

On Spring Creek, a tributary of Lincoln Gulch, as high as \$4 to the pan has been taken out. Mining commenced on last Thursday, but on Friday the ditch broke and work was suspended until it could be repaired. Mining is in active progress now. From some refuse dirt, merely run through the sluices to get it out of the way and not expecting it would yield anything, one company cleaned up \$400.

L. H. Hershfield & Co. have purchased the Baker mill now situated on Blue Cloud lode, which they propose moving immediately, and locate upon celebrated Thomas lode near Cable City. This is a 20-stamp mill complete in every particular.

At Diamond City, the yield in the gulch (Confederate) is as rich as ever. Mr. McGregor averages a round thousand per day. Head & Co., the next claim above McGregor's, declared a dividend of over \$4,000 last week. The great water pipe which was finished on Sunday afternoon, worked to a charm. A large concourse of people were on the ground.

Mr. Esler has sold the Argenta furnace to Capt. Guyer, who proposes to run it as soon as he can procure a smelter. Mr. E. failed on account of the closing in of his creditors upon him at the moment of success. He took out \$14,000 worth of silver bullion in 75 days, leaving, in fact after paying for the building of the furnace, there was really a net profit of \$2,000. Col. Wood at Bau-nack had almost concluded to wind up under the same circumstances, two attachment suits being commenced against him; but he persevered, and last week settled up the suits. In another month he will be independent.

ESMERALDA.

NEVADA.

Aurora *Union*, May 16th: Kearns, Olsen & Co., struck a small ledge a few days since, at Bodie, of extraordinary richness. They have already taken out about eight tons of rock which issued to literally glisten with the precious metals. Owing to the deep snow and deep mud on the road leading to the company's arastras, they have not had a crushing yet. This company have also another ledge which is no bad thing, as they already have a hundred tons of ore out of it, the yield of which is estimated at \$100 per ton. Mooney & Co. have a large amount of good ore on their dump. The Swanson Bros. are said to have struck a very rich deposit in their mine, and are getting out first class ore. Each company has a large water-power arastra on Rough Creek, in which they believe they can save as large a per cent. of the metal in the ore as can be obtained by working in the best mills.

Mr. P. P. Moses, who has just finished building a mill for Toombs & Abraham at Pine Grove, informs us that times are very flush, and that two more mills will probably be erected there during the summer. Each claim, being worked, says Mr. Moses, can more than supply a first-class mill with good paying ore.

J. J. Poor, who recently purchased the mine on Last Chance Hill, out of which Arnold & Co. made a neat little fortune of fifty thousand or upwards, in a few weeks, is said to be doing very well. The ore is not so rich as when Arnold & Co. were working the mine, but good enough yet to pay a very large profit for extracting and working. Mr. Poor is said to have realized a handsome little sum from the dump left by Mr. Arnold, from which he has assorted a considerable quantity of very rich ore.

The difficulties between the Catterwood and Kentucky Cos. at Palmetto have been amicably settled. Arrangements have been made for the immediate erection of a mill in the district. The mines are said to be looking remarkably well and the company already have a large amount of good ore on the dump awaiting the erection of the mill.

PAHRANAGAT.

Austin *Reveille*, May 22d: Mr. George E. Clark, has furnished us notes of his visit to Pahrana-gat: At Crescent City I found quite a little mining camp, and the mill of the Crescent Company, partially finished, suspended for want of funds. At the claim on the List lode belonging to this company I saw about 25 tons of good milling ore on the dump. At Logan's springs, two miles off, I found some Chicago men engaged in smelting. At the Illinois lode, I was happily disappointed. The lode cuts the spur of the mountain at right angles, and is accessible from the summit to the bottom of the cañon, a distance of about 1,000 ft. The company is crowding the development of the ledge as fast as possible. A shaft is sunk directly on the ledge to the depth of 100 ft., and two tunnels are being run from the north and south sides of the mountain for the purpose of tapping the shaft and giving a current of good air. Work is suspended on the Webster claim.

RESE RIVER.

Silver Bend *Reporter*, May 16th: The Silver Queen ledge, near the Champion, a mile and a half northwest of town, shows at the surface a vein of rich ore two or three feet. At a depth of near 30 ft. it widens to six or seven feet. A vertical shaft is now in progress, and will soon reach the vein.

Mr. Bauer has sent from the Ophir mine to the Manhattan mill, at Austin, about a ton of ore for a test. Within three months it is supposed the company will be at work upon the Ophir and other mines in that district, with ample capital to develop and place them in proper shape.

A small test lot of 2,372 lbs. of ore from the Savage lode, in Montezuma district, 50 miles south of here, in this county, worked at the Manhattan mill, at Austin, recently, gave a pulp assay of \$293.77 to the ton.

Pleasant Valley district, in East White Pine, seems destined to become famous for its production of rich silver ore. The Hidden Treasure vein, owned by Wm. McCauley, Frank Drake and others, has a width

of 16 ft., at the depth of 14 ft. It is a mass of mineral of the richest character, yielding so far as tested \$500 to the ton. The Aurora is the property of Drake, McCauley, Leathers and Linsey. It is about three-fourths of a mile south of the Hidden Treasure, and the ore is identical. A shaft has been sunk upon this about 14 ft. deep, and a cut about 20 ft. long made across the ledge, but at the time our informant left, had failed to reach the opposite wall. The Monte Christo mill, a small 5-stamp affair, is situated 20 miles westerly from Pleasant Valley district and mines.

WASHOE.

[In the Stock Circle, in another portion of this paper, will be found late mining news from this district.]

Territorial *Enterprise*, May 19th: Two hoisting tanks are again in operation at the new Imperial-Empire shaft. At noon yesterday, the water stood in the shaft eight ft. above the floors of the drifts. The tanks are kept going constantly, and as each holds 600 gallons, the water is fast decreasing. Drifting will be resumed as soon as the water is out.

Same of 21st: From what we have learned, the soldiers have found very good diggings in the Independence Valley region. About 25 miners are engaged in working the mines discovered, which are mostly placer, and are doing very well. The gold is worth \$13 per ounce. A party from Austin are making arrangements to erect a 10-stamp mill on a lead owned by them, the ore from which they think will pay \$40 per ton. Independence Valley is 60 miles north of the Humboldt River.

22d: The Imperial-Empire has shut down again for repairs. They will be completed in 48 hours.

23d: From the office of Wells, Fargo & Co., in this city, there were shipped during the past week, 1,208 pounds of assayed bullion, valued at \$83,406.20; from the office of Wells, Fargo & Co., Gold Hill, 4,624 pounds, valued at \$117,871.64.

24th: The Imperial-Empire works are again in operation, and all is going ahead as smoothly as could be desired.

The Alpha Co. are about to resume operations. The machinery is being overhauled. The Imperial-Empire shaft has drained the mine, and the company can now resume mining in the lower level, where they were obtaining ore of an excellent quality last fall when struck by an overwhelming influx of water.

Trespass, 23d: In the Sierra Nevada, work progresses very satisfactorily. The Ophir shaft is being sunk in good ground, and reasonable progress is reported. Lady Bryan just about pays expenses. In the Gould & Curry, the water has been exhausted from the shaft. Drifting is to be commenced. The Savage is yielding about 1,350 tons per week of ore that will average about \$32. Station No. 6 progresses, and a drift will soon test the ledge from the lowest level. In the Hale & Norcross, the drift from the winze, at a distance of 79 ft., cut the ledge. It showed some little ore mixed with quartz, but before developed was flooded with water, and operations were suspended. The drift at the lower station will probably penetrate the ledge in about two weeks. In the Chollar-Potosi, the incline is down 206 ft. and the work yet continues. From the Blue Wing station, west portion, ore is being extracted which pays for reduction. In Alpha, yesterday, a force of mechanics went to work putting the machinery in repair, preparatory to prospecting in the mine. The Imperial-Empire shaft, it is believed, has exhausted nearly all of the water from the west side of the hill. In Bullion, the drift at the 1,200-foot level remains unchanged in appearance, cutting through a mass of dry porphyry, with no present indications of quartz. The Imperial is yielding the usual quantity of ore, and has been entirely drained through the new shaft. A new lot of machinery has been substituted at the shaft, and the water which was above the drift is draining to the track floor. In the Occidental the usual quantity of ore is being taken from both the upper and lower levels, yielding an average of \$22 at the mill. In the Yellow Jacket there is no change in any of the prospecting drifts. Enough low grade ore is being extracted to keep the Morgan mill employed. Next Monday the work of letting down the pump column for a new level will be commenced, and continued as rapidly as possible. The Kentucky mine presents no change whatever, and is yielding daily about 90 tons of excellent ore. In Crown Point, the south drift is looking better, and the east cross-cut of 17 feet has developed some good ore. The upper levels are yielding the usual quantity of first-rate ore. In the Belcher, at the 850-foot level, the drift cast 130, the

north drift 345, and the cross-cut west, have developed a body of clay with traces of quartz. The clay has been cut through, and a stratum of porphyry developed with considerable water. The east drift has been discontinued. In the Overman, the ore extracted is of very low grade, and hardly pays for reduction.

NEW MEXICO.

Santa Fe *New Mexican*, May 5th: New towns are springing up in several quarters like Elizabethtown in Mora, and Central City in Grant counties, which bid fair to become thriving and populous business centers. Elizabethtown is a thriving, busy town of near a thousand inhabitants, and with thousands of miners near and around her. An immense influx of population is anticipated this spring and the coming season.

Mesilla Valley letter to *Donver Herald*, dated April 16th: The Pinos Altos miners are jubilant. New discoveries have been made of quartz leads of exceeding richness. Much gulch gold is also being taken out in Pinos Altos and Fort Bayard districts.

OREGON.

Mr. R. V. Short has left with us, says the *Enterprise*, a fine sample of almost pure copper, found in this county, near Boone's Ferry, Clackamas County. Mr. F. M. Shaver found it about two feet under the surface, where he was excavating for gravel. There can be no doubt about the genuineness of this article, and we are informed that since the discovery, evidences have been found that the quantity is almost inexhaustible.

PROTECTION TO THE EYES OF WORKMEN.

Dr. Cohn, of Breslau, has been collecting statistics in regard to the manner in which the occupation of metal workers affects their eyes. Of nearly 1,300 men, belonging to six engineering establishments, examined by him, he found that more than 600 had been at some time or other under medical treatment for the accidents to the eye incident to their business; and that, too, on an average twice each, making the total number of accidents requiring medical aid almost equal to the number of men examined. Most of these men had objections to the use of spectacles, as being too easily broken; and on that account, not only expensive, but dangerous. It occurred to Dr. C. that spectacles made of mica might answer; and the trial so fully realized the hope, that they have already come generally into use. The *Mechanics' Magazine* thus describes them:

"The mica spectacle glasses are curved somewhat in the shape of watch glasses; they not only protect the eye in front, but their frames fit closely round the eye sockets, so that no chips can enter from any part, and still the eyelashes do not touch the glasses. The frame is made of thin brass wire, which can easily be bent into any shape. As hinge joints would have caused too much expense, the side parts are soldered on to the frame. The thickness of the mica is about one-twenty-fifth of an inch. These mica spectacles, besides protecting the whole eye, have the following advantages: First, they cannot be broken; heavy blows with a sledge hammer only squeeze them flat, without breaking the glasses. They may be thrown to the ground with full force without being damaged in the least. Red hot metal poured on the mica does not make any impression on it. The shower of pointed particles of iron which issues from lathes, etc., only rebounds from the perfectly elastic mica glasses. Secondly, they weigh only about one-half as much as glass spectacles. Thirdly, they keep the eyes of the workmen cool, mica being a very bad conductor of heat. Fourthly, they are very much cheaper than glass spectacles. They are sold at Breslau for about eightpence, English money, apiece."

SIGNALS ON SHIPBOARD.—Telegraphic signals are now designed for use on shipboard. On a naval steamer, a circular dial, with movable hands and indicatory words, is fitted on deck; a similar dial is placed in the engine-room, or on the gun-deck, or at the rudder, each connected by metallic air-tubes with the one on deck. The officer wishing to give an order turns a handle fitted in the side of the dial by which be stands, and instantly the same signal appears on the steersman's dial, and he obeys the order. In the same way, the captain may send his commands to the captains of the guns, or to the engine-room.

Mining and Scientific Press.

W. B. EWER, SENIOR EDITOR.

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Canvassing Agents.

Our PRINTER can do much in aid of our paper and the
cause of practical knowledge and science, by assisting our
Agents in their labors of canvassing, by lending their influ-
ence and encouraging favors. We shall send none but
worthy men.Mr. A. C. Knox, is our city soliciting and collecting
Agent, and all subscriptions, or other favors extended to
him, will be duly acknowledged at this office, Jan. 11, 1886.
Mr. C. T. Raney is our duly authorized agent for
Sacramento County, Nov. 23, 1887.Dr. L. G. Yates is our duly authorized travelling
agent, July 6, 1887.
Mr. A. B. Butler is a duly authorized travelling
agent for this paper, July 15, 1887.

San Francisco:

Saturday Morning, May 30, 1868.

Notices to Correspondents.

ACEQUIA, Santa Barbara.—Few improve-
ments can be named that possess such a
durability as those erected for irrigating
purposes, when properly constructed.
The walls, hanging gardens and towers of
Babylon and Nineveh, have long since
disappeared amidst the rubbish formed
by their own decay; but the constructions
for irrigation and raising water still re-
main on the banks of the Euphrates and
Tigris. In mediæval history, the Moors
stand foremost in systematizing irriga-
tion, next to whom, historically, may be
classed the people of northern Italy.
But of modern improvements in this re-
spect, nothing is to be found of equal
grandeur with the irrigation works
formed during the last twenty years in
British India, which, when completed,
—and they are rapidly approaching this
point,—will, it is calculated, totally pre-
vent in future a recurrence of those des-
olating famines which have formed such
blemishes in its history; the East and
West Jumna, the Ganges and the Sut-
lodge are amongst the largest works of
the kind. The length of the main lines
of the West Jumna canal, is 445 miles.
The Sutledge canal discharges a volume
of 2,500 cubic feet per second, and irri-
gates an area of 312,000 acres. The
Ganges canal has a total length of 898½
miles. Every circumstance associated
with the physical features and climate
of California, combine to point out irri-
gation as being a most desirable invest-
ment.

R. C. B., Drytown.—We are unable to say
whether the drill, about which you in-
quire, is shaped by hand swedging or by
machinery. With regard to the effect of
swedging or pressing steel into shape as
compared to shaping by the hammer, there
can be no doubt but that the hammering
is much preferable, from the fact that it
is impracticable by the former method to
bring the particles of steel into so close
contact as by the latter. By the blows of
a hammer a much greater force is concen-
trated and brought to bear upon a small
point than is practicable where the com-
pressing force has to be applied to every
part of the surface at the same instant of
time. No process of tempering can remedy
the defects arising from an imperfectly
hammered piece of steel.

L. F., Sierra county, wishes to know if
there are any parties in this State, who
are willing to undertake a contract for
deep boring, as for the ventilation of a
mine. The mine in question is a placer
claim, situated in the ancient drift or
"deep diggings" of Sierra county. The
formation of the hill through which the
boring will have to be made, is a cement
or lava formation, and very hard, and
the bore would have to be about 600 feet
deep. The object is to secure ventilation.
If any persons would like to undertake
such a work we should be pleased to put
them in communication with our corre-
spondent.

CARBON.—The beds of coal recently report-
ed to have been again allowed to be
worked near Pekin, belong, we believe,
neither to the carboniferous beds of the
Eastern States and Europe, nor to our
California coal beds, which latter, per-
tain to the cretaceous age; but according
to Mr. Pumpelly, the Chinese coal
beds belong to the Permian system, or
the last of the Paleozoic series, being
immediately overlaid by the New Red
Sandstone, or Trias of the German geol-
ogists.

The "New Flux" for Gold.

For nearly a year past various Eastern
journals have, from time to time, been mak-
ing mention of what is claimed to be a new
agency for the separation of gold from its
ores or matrix—under the designation of
"The Stevens' Flux." We have hitherto
refrained from making any extended notice
of the same, from the fact that we had sup-
posed that this, like all other new things in
the way of metallurgical operations, sug-
gested by persons having no extended prac-
tical acquaintance with the subject, would
soon be forgotten, from the lack of its ap-
plicability. But as the subject seems to
have been again brought prominently be-
fore the public, in consequence of some ex-
periments recently said to have been made
in Boston, and for the reason that it has
now been placed before the people of this
State through one of our prominent com-
mercial journals, we have thought it proper
to inform our readers of what the supposed
improvement consists, and caution them
against placing too much confidence in
the over-wrought statements of Eastern or
any other journals, which are not supposed
to be thoroughly informed upon such mat-
ters.

With the usual assurance of proprietors
of new processes, it is claimed, not only
that this flux is new, but that by it "a
much larger amount of gold can be ob-
tained from the same quantity of ore, than
can be had by any other process or means
known in mining." Indeed, it is claimed
in an article from the *Boston Post*, which
was noticed at considerable length in the
San Francisco Evening Bulletin of Monday
last, that at a recent experiment in Boston
\$431 to the ton was taken from ore that
would yield but \$22 to the ordinary work-
ing process.

With certain ores, as for instance those
containing a very large percentage of sul-
phurets, such a result might be possible;
but no metallurgist, who understood his
business, would subject such ores to any
ordinary process. There are well known
processes by which such ores can be worked
fully as cheap and probably cheaper than
by the use of "Stevens' flux." If the ores
worked were free from sulphurets, the state-
ment of the difference of yield between the
two processes is simply absurd.

The Stevens flux is nothing more nor less
than the residuum thrown aside from the
works at Natrona, near Philadelphia, which
works consume a large quantity of the min-
eral, cryolite, in the production of soda.
This residuum consists of a fluoride of cal-
cium, intermixed with the earth alumina,
and a little silica, carbonate of lime and per-
oxide of iron. An analysis of this product
gives substantially the following:

Fluoride of calcium.....	50.87
Alumina and peroxide of iron.....	21.95
Carbonate of lime.....	5.87
Lime.....	7.63
Silica.....	3.61
Water.....	10.04
	100.00

It will be seen from the above analysis
that the chief value of this flux is due to
its characteristic ingredient of fluoride of
calcium, which occurs in nature as fluor-
spar, and which is well known as a valu-
able flux, for which it has been used in
the laboratory from the earliest days of
metallurgical operations, as well as on a
working scale. The advantage of the addi-
tion of a chloride, (as common salt) as used
by Stevens, is also well known. The chief
advantage derived from the use of the flu-
orides, is the remarkable fluidity which
they give to the heated mass; thereby reu-
dering the separation of the metals more
easy and certain. Their usefulness is great-
est in the case of silicious ores, upon which
they operate in a three-fold manner. First,
by removing, in a gaseous form, much of
the troublesome acid (silica) constituent of
the ore. Second, by the union of the lime
with another portion of the silica to form
silicate of lime, which then passes into
slag, and is rendered still more fusible, as

above stated, by the presence of the fluoride,
which last constitutes the third advantage.

To the fluidity of the slag produced by
fluorides, is due the fact that inexperienced
assayers often obtain better results there-
with, when employed with suitable ores,
than when soda, lime, etc., is used without
fluor spar. The use of fluorides is more
serviceable with some ores than with others;
but the idea that they can extract "five,
ten and twenty times" as much gold as can
be obtained by the use of the ordinary
fluxes, is all moonshine, and the assertion
would never be made by any one who has
a thorough knowledge of metallurgy.

The chief objection to fluor spar, in ex-
tensive metallurgical operations, is its great
cost and the fact that it requires a high
temperature; thus involving additional ex-
pense for fuel.

Large quantities of the product called
"Stevens' flux," is thrown out as "waste,"
at the Natrona Works, above alluded to,
where it is stated some 12,000 tons have ac-
cumulated. The use of this material for a
flux, as we understand it, has been patented
by Mr. Stevens, who proposes to furnish
the same at a given price per ton. There
is no question as to its value; but the only
really valuable ingredient in the same can
be more cheaply obtained in another form—
as fluor spar—which consists of lime 52.57
and fluorine 47.43,—all of which is valuable
in fluxing; while not more than 60 per cent.
of the Stevens flux has any value in the fur-
nace. The 21 per cent. of alumina and
three per cent. of silica has to be fluxed and
got rid of at the expenso of the remaining
fluorine and lime.

In view of the above facts we do not see
what possible value the Natrona product
can have over other well known fluxes. In-
deed, where transportation constitutes a
large item of the cost, as in California, fluor
spar itself,—all of which can be utilized in
the furnace,—must be far preferable to the
Stevens' flux, where half the quantity is
worse than useless.

In working ores of a low grade, it is not
possible that any smelting process, what-
ever, can be made economical.

Great stress appears to be laid upon a re-
port upon this flux made by Prof. Hayes, a
well known metallurgist of Boston, and a
man of undoubted ability. We have read
the Professor's report very carefully, and
cannot find anything therein that contro-
verts the opinion which we have herein
above expressed. His estimate of the flux
is given as follows:

My trials covered its action on the sili-
cious, aluminous, calcareous rocks, and on
sulphureted ores with compound rocks;
and, in all these applications, the minerals
were perfectly melted into thin, generally
glass-like masses, and the metal, or regu-
lus, separated cleanly from the ore.

Indeed, when I used the most expensive
fluxes in the laboratory, the separation of
the metal was no more perfect than when the
ore mixed with this flux was exposed under
like conditions. * * *

[As a fair inference, then, the reverse must
also be true that no better result could be
obtained by the Stevens' flux than by the
most expensive fluxes in the laboratory,
which are the fluorides, as we have already
stated.]

From the trials made, and the well known
character of fluoride of calcium, it is safe
to conclude that in certain proportions, with
or without common salt, this flux may be
usefully applied in reducing any ores or
any wasted mine products. Its special ap-
plication will be doubtless in cases of re-
fractory gold and silver ores containing
sulphides and other compounds of the com-
mon metals, which it reduces to regulus, or
pure metal directly, when sufficient heat has
been applied. When ores containing lead,
silver and gold are fluxed with it, the lead
in mixture with the silver and gold is readily
obtained, every trace of the precious metals
being removed from the ore. In this con-
nection, this flux belongs with the best
known fluxes which can be obtained, re-
gardless of cost. * * *

The experiments demonstrated that this
flux may be applied in the large way, for

reducing ores directly, in furnaces of a
proper form. * * *

It was also proved that the sulphureted
ores afforded sulphureted products, and,
when precious metals were present, these
were held in the impure regulus. It be-
comes necessary, therefore, to roast such ores
before smelting them with this flux, in order to
obtain metallic alloys or rich regulus.

The Professor adds: "It will be safer,
in all cases of the reduction of gold ores, to
insure the presence of some base metal to
form an alloy. In other words, this flux
must be used like any other—the sulphu-
reted ores must be roasted, and free gold
must be collected by the aid of lead or its
compounds, which necessarily involves cupel-
lation, or some other expensive operation
for the final process. This statement is very
far from sustaining the extraordinary claims
put forth in the Stevens' Flux Company's
Circular, or in the report from the *Boston
Post*, alluded to in the former part of this
article. In conclusion, we would express the
opinion that Col. Stevens is just as far from
having found a panacea for the extraction of
gold as have been the hundreds of other
new process-men who have preceded him.

SINGULAR FACT.—We have been informed
by one of the proprietors of the claim known
as the Wisconsin claim, situated in Placer
county, near Colfax, that about once in
every three months they are compelled to
excavate their main tunnel about one foot.
It seems that the tunnel is dug through a
talcoose substance, which, as soon as the air
and light is let in upon it, begins to rise up
or swell so much as to in many instances
crush the supporting timbers. What is
most singular, it does not seem to close up
from the sides or top of the tunnel, but only
rises up from the bottom. The class of
stone called talc, or yellowstone, which is
a kind of mineral magnesia, will expand
when put through a heating process; but
we have never heard of any kind of earth or
stone expanding to the above degree, by
either heating or by any other process what-
ever. This is a subject for the investiga-
tion of geologists and scientific men, and we
generously leave the matter with them for
their own conclusions in regard to the same.
Sacramento Record.

The above phenomenon is very easily ex-
plained, and is quite common in all dis-
tricts where the "bed-rock" is of a mobile or
plastic consistency—like soft, decomposed
granite, or soft slate, of the description al-
luded to by the *Record*. The filling up of
tunnels in such places, is caused by the
weight of the superincumbent mass of earth
forcing the plastic material below the floor
of the tunnel, into the cavity formed by the
excavation; just as when two pieces of
plank are placed parallel in soft clay, a few
inches apart, the clay will gradually rise up
between them, in consequence of the pres-
sure exerted by the planks upon the yielding
mass. The only remedy is to secure the
bottom of the tunnel in the same manner as
the top and sides; but with stouter lining.

J. ROSS BROWN'S SUCCESSOR.—We clip
the following from the *American Journal of
Mining*, of April 25th: "In reply to many
letters of inquiry, we would say that Mr.
Rossiter W. Raymond, lately appointed
Commissioner of Mining Statistics, is still,
and will continue to be, the editor of the
American Journal of Mining, and may be
addressed at the editorial rooms. Mr. Ray-
mond intends to sail for San Francisco on
the 9th of May, after which his address will
be in that city, care of J. W. Raymond,
Esq., but letters sent to this office will be
regularly forwarded to him."

REBELLIOUS ORES.—Among our new ad-
vertisers, this week, appears one from
Messrs. R. Taylor & Co., which will to many
prove a most agreeable one, as we are in-
formed that these gentlemen purpose com-
pleting arrangements having for their ob-
ject the reduction, in California, of those
descriptions of ores commonly denomina-
ted as rebellious ores, and thus avoid for
the future their shipment to Europe for
their reduction.

CONTINENTAL Life Insurance Company,
302 Montgomery street, corner of Pine.

Interesting California Inventions.

Mr. D. H. Quinn of Sacramento, has furnished us with a description of several interesting inventions recently made by Dr. Thomas of that city. The first is a "Self-Priming Pump," which has all its valves under water, and is described as most complete and simple in its action.

The second invention described by our correspondent, is a "Submerged Furnace" for heating water and generating steam. This furnace can be placed in a tub, or barrel, or used for heating a steam table by the furnace fire. It heats the water upon its outside, and generates steam by the water passing through a coiled pipe placed within the fire of the furnace. It is economical in its use of fuel, of portable size, and appears to be the most effectual apparatus of the kind ever invented, for the purposes for which it is intended. Both these inventions have been patented.

The Doctor has also filed a caveat, and prepared the drawings and specifications of a "Self-Heat Regulating and Self-Attending Cooking Stove," in which the cooking is done chiefly by steam heat. The invention consists of a cylinder with horizontal and perpendicular cylinder ovens therein, all made perfectly steam tight; the superheated steam on the inside of the cylinder and around the ovens is kept at a given temperature by the heat regulator, and all the different dishes of food are cooked in steam-tight vessels, in such a manner as to retain all the aroma of the food, and thereby preventing any odor rising from the stove during the time of cooking. All the vessels containing the food can be highly polished, and will retain their polish during the time of cooking. The vessels in which the cooking is done, can be taken from the oven and be placed on the table to keep the food hot, and would be an ornament thereon. Each dish can be regulated to the minute of time in cooking, as well as the desired degree of heat; for the arrangements are such that there is a clock attached to the stove, to place each dish in the oven at its proper time. For instance, if you wish to have your dinner at 12 o'clock, you will first arrange all the different dishes in their steam-tight vessels, and place the same on trays in front of their respective ovens, then wind up the clock-weight to its proper place, fasten the pendulum of the clock to the lever of the heat regulator, and start the fire in the stove. When the steam in the cylinder is heated to the given degree, the regulator will raise the lever, disconnect the pendulum and start the clock, and as the clock-weight is running down, it comes in contact with the springs that place the dishes in their respective ovens at the given time, to have them all properly cooked at 12 o'clock. And farther, when all is cooked, the clock-weight touches another spring, which rings an alarm bell, closes the stove drafts, opens the oven doors and drafts, to cool the cylinder to a degree sufficient to keep all the dishes warm until called for at dinner.

This invention can also be used for generating steam for power, and can be kept at any given degree of heat, in a uniform manner, with a large saving of fuel, and with no danger of explosion. It may be employed to keep vats of wine at the proper degree of heat, to ripen the same in the shortest space of time. The above machines are on exhibition at the Doctor's office, where all who wish, can see them. The Doctor has made experiments sufficient to prove that he can accomplish what he states, and he will commence the manufacture of these stoves as soon as he has obtained a patent on this invention.

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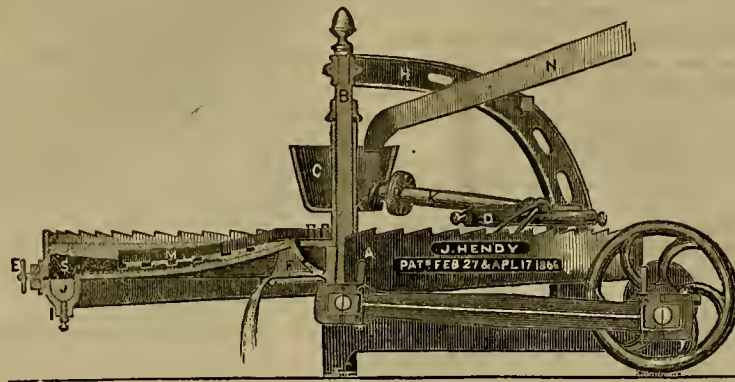
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2v14n5p SAN FRANCISCO.

HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators or pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

- The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets. [See Figure 2, marked S]
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (8 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (8 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOOD MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO. Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M & M. CO. (3 Concentrators).....	Hunter's Valley, Mariposa County.
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.
JAMES HENTY & CO. (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.

J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.

W. H. RODDA, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co.,
VIRGINIA CITY, Nev., Sept. 17, 1867.

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,
Union Foundry, San Francisco.

April, 1868.

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RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of
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necting Rods, Car and Locomotive Axles
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— ALSO —
HAMMERED IRON

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Orders addressed to PACIFIC ROLLING MILL and
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The highest price paid for Scrap Iron. 9v14n5pqr

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MANUFACTURERS OF

HOSE AND TAPE FUSE,

A New and Superior Article for Blasting in
very wet ground, or under water.

Great difficulty has heretofore been experienced by min-
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to deterioration from exposure to dampness during trans-
portation, or during the great length of time which has
passed between its manufacture and use. In addition to
great painstaking in the manufacture of the California-
made Fuse, the above and many similar objections are en-
tirely obviated, and the operator can always depend with
certainty upon the burning of his fuse.

It is often the case that extra lengths are required, as ex-
ploding tunnels, etc., longer than is furnished in the im-
ported article. Fuse of every desired length or size can
be made to special order, at the above manufactory.

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Requires no springs or screws; is always steam tight;
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NEW GRINDER AND AMALGAMATOR

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WITH PALMER'S PATENT STEAM CHEST,

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is the only Amalgamator that has stood the test of seven
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Genuine White Iron Stamp Shoes and Dies

Having been engaged for the past ten years in quartz
mining, and being conversant with all the improvements,
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ing ores, or saving either gold or silver. 13v10g-11WILLAMETTE IRON WORKS,
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Also, Hay and Wine Presses made and repaired
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Manufacturers of Machinery for

QUARTZ MILLS, FLOUR MILLS,
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Steam Engines of all Kinds.

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MINING PUMPS, HOISTING WORKS

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Machinery and Castings of all kinds, either
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Branches.Shoes and Dies of White Iron, manufactured
and imported by us expressly for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.Russia Iron Screens, of any degree of fineness.
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.

W. H. HOWLAND

E. T. KING,

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Foundry and Iron Works.

HINCKLEY & CO.,

MANUFACTURERS OF

STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Im-
proved Crusher, Mining Pumps,
Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 3-4yBAURHYTE, McAFEE & SPIERS,
BOILER MAKERS

AND GENERAL MACHINISTS,

Howard st. between Fremont and Beale, San Francisco.

Flue or Tubular Boilers, with plain circular or spiral
courses. Upright Flue or Tubular Boilers, Locomotive and
Marine Boilers, and Wrought Iron Tanks of every de-
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is prepared to make out Plans and Specifications, receive
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that may be entrusted to their care.To Inventors.—The firm is prepared to assist in de-
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practical experience necessary to put the same in form, by
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MARINE ENGINES,

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All kinds of Ship-smithing and Mill work manufactured
to order. Jobbing of every description promptly attended to.
All work done guaranteed. 13v14-1y

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No. 38 Fremont street, between Market and Mission, S. F.

Jobbing and Polishing done at shortest notice.

Special premium awarded at the last State Fair, Sacra-
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Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Gongs of superior tone. All kinds of Cocks and Valves, Hy-
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nections of all sizes and patterns, furnished with dispatch.

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First and Fremont Streets,
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a very large variety of Gear and other Patterns, which,
with our superior tools and appliances, give us facilities for
doing first class work unequaled on the Pacific Coast.

Among other things, we manufacture the following:

STEAM ENGINES,

Horizontal and Vertical, for either Stationary or Marine
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BOILERS—High and Low Pressure,

Pump, Pipe and Sheet Iron Work of every kind.

Quartz Mill Work,

Including High and Low Mortars, for wet or dry crushing;
Furnace Irons for Roasting Ores; Feeders, Barrels;
Varney's and Wheeler's Amalgamating Pans
and Settlers; Stamp Shoes and Dies of
best White Iron; Russia Iron
Screens, etc., etc.Flour Mill, Saw Mill and Sugar Mill Work in every variety;
Pumping and Hoisting Machinery; Hansbrow's
Patent Challenge Pump, for Domestic,
Ship and Mining use—the most
approved and successful
Pump manufactured.

Castings of every description, Iron and Brass.

We would call especial attention to "Wright's Patent Vari-
able Cut-off Engines," of which we are the sole manufac-
turers on the Pacific Coast, under license from the Wood-
ruff & Beach Co., Hartford, Ct. As a simple, effective, fuel
saving, first-class Engine, this is, without doubt, the best
Engine made in the United States.
Orders promptly attended to. Prices as low as possible
for first class work, and we intend to do no other.

GODDARD & CO.

San Francisco, May 1, 1883.

To Foundrymen and Blacksmiths.

LUMP LEHIGH and CUMBERLAND COAL, IN ANY
quantity, sacked and shipped to any part of the coun-
try, by
JAS. R. DYBLE, Coal Dealer,
413 and 415 Pacific street,
bet. Sansome and Montgomery,
San Francisco.

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PATENT AGENTS,
ENGRAVERS AND PUBLISHERS
Mining & Scientific Press.
CIRCULARS FREE.
SAN FRANCISCO.

California Steam Navigation

COMPANY.

Steamer CAPITAL.....CAPT. E. A. POOLE
" CHRYSOPLIS.....CAPT. A. FOSTER.
" YOSEMITE....."
" CORNELIA.....CAPT. W. BROMLEY
" JULIA.....CAPT. E. CONCKLIN.Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, Chico, and Red Bluff.Office of the Company, northeast corner of Front and
Jackson streets.

13v12

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President.

International Hotel,

JACKSON STREET.

BETWEEN MONTGOMERY AND KEARNY STS.,
SAN FRANCISCO, CAL.THIS OLD ESTABLISHED HOUSE IS IN PERFECT
order for the accommodation of guests. Persons seek-
ing comfort and economy will find this the best Hotel in
the city to stop at. The Beds are new and in good order,
and the Rooms well ventilated. The Table will always be
supplied with the best in the market.Prices varying from \$1.50 to \$2 per day for
Board and Room.FINE BATH HOUSE AND BARBER SHOP ATTACHED
TO THE HOUSE.Teams belonging to the House will be in attendance
at all the boats and cars to convey passengers to the House
FREE OF CHARGE, and to any part of the city for 50 cents.
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AMERICAN HORSE HOLDER.

Holds your horses; teaches runaway horses to stand still;
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Your Teams are Always Safe.

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The American Spring Bed.

THIS BED, NOW SO POPULAR IN THE EASTERN
and Western States, was patented August, 1856. For
practical utility, comfort and durability, it is unsurpassed.
It is easily applied to any bedstead. It is portable, and
not liable to get out of order. The price is about one-fourth that
of the spring mattress. It combines elegance with cheap-
ness and comfort. Call on the Mechanics' Institute
Building, No. 28 Post street, San Francisco. 5v16-3mIMPROVEMENT IN GAS ILLUMINATION.—It
was some time since proposed to substitute
for the ordinary gas light the more intense
Drummond light, which is produced by in-
troducing a piece of quicklime or magne-
sia into the flame of a mixture of oxygen
and street gas. The effects thus obtained
surpass those of the latter so considerably
that most persons have felt that all that was
required to permit of this principle of light-
ing was the introduction of a cheap process
of obtaining oxygen gas. Mr. Bourbouze,
however, has now constructed an apparatus
which does away entirely with the prepara-
tion of oxygen, affording at the same time
a great economy in regard to the quantity
of gas employed. The former is substituted
by atmospheric air, the practical arrange-
ment for effecting the combustion being the
following: The gases are admitted into one
common tube; from thence they pass
through a sheet of metal, perforated with a
great many holes, in order to be divided
into many small jets; these are delivered
through a gauze of platinum wire, when
they are lighted. The metal, in being
heated, soon becomes red, then white, and
thus diffuses a dazzling light.—London Min-
ing Journal.DR. T. LAMBERT recently gave an inter-
esting lecture on Biometry or Measure of
Life. He stated that long trunks in the
human body, and hazel eyes are indications
of longevity and that a certain depth of the
orifice of the ear will also indicate a short or
long life. Brown eyes belong to the bil-
ious and blue eyes to the sanguine tempera-
ments; he would add other two, viz., the cap-
illary and lymphatic temperaments, and
classify the mechanism of the human body
as blood making and mental. He remarked
that the lives of those accustomed to se-
dentary employment were short, whereas
blacksmiths and machinists generally lived
to old age. Where parents have lived to a
ripe old age—their descendants would in-
herit their longevity. In Zurich there are
few persons who live after sixty years,
whereas in Berne, Switzerland, the inhabi-
tants were remarkable for longevity."DEAD-OIL" AS FUEL.—We find the fol-
lowing in the London Quarterly Journal of
Science for April: "At the works of Messrs.
Miller & Co., Glasgow, the 'dead-oils'
from the gas works,—which are a waste
material for which the gas manufacturer is
glad to get a penny a gallon,—are burnt
under two steam boilers with great advan-
tage and economy. In the morning the fire
is lighted with coke or coal, and the fire-
bricks heated. Then the 'dead-oil,' which
flows down a long-necked funnel, is forced,
by a small jet of steam, into the furnace.
It ignites at once, producing an intense
heat, which is maintained all day without
the addition of any other fuel. Some ex-
periments were about to be made with these
oils in the locomotives for the coal trains of
the Caledonian Railway.THINKS HE MAY GET IT.—The American
Journal of Mining says: A. W. Putnam,
who has been searching for some time past,
under the guidance of a Boston spiritualist,
for buried Spanish treasures at Scitico, Ct.,
thinks he has now fairly reached the walls
of the enchanted cave. At a point twenty-
five feet from the entrance, the witch hazel
turned to three points, and he has gone to
Boston for a medium to visit the spot and
tell what it means. At a previous visit to
Boston, he left orders with his workmen to
continue until directly behind a certain
stump, and then stop, awaiting his return.
At the time of their stopping, he was sum-
moned by a medium, who told him the fact
in detail, and sent him back, as the spirits
couldn't let the work wait.THE SUEZ CANAL.—The Duke of St. Al-
bans, who has recently visited the Isthmus,
writes to the London Times upon the sub-
ject,—closing thus: "The canal now enters
the Mediterranean and forms the harbor of
Port Said. Eight years since, there was a
narrow strip of sand between the sea and
lagoon, without a hut on it. I now see a
town of 10,000 inhabitants—a rapidly in-
creasing Venice—and a port full of large
shipping. I do not believe there is a single
person on the Isthmus who is not firmly
convinced that the undertaking will suc-
ceed. They see in a marvelously short
space of time a population of 20,000 Euro-
peans alone, created in the middle of the
desert, and supplied with necessaries and
luxuries. They see a great port spring up
under their very eyes, as if by magic, and
the object of their enterprise two-thirds
completed.GERMAN CHARACTERS TO BE DROPPED.—
The Germans are beginning to print their
books in Roman type. It is found much
clearer and less trying to the eyes. Ophthal-
mia killed half the poor compositors before
they had been ten years at the business.

Several Ways of Dissolving India Rubber.

In Oil of Turpentine.—The India rubber, after being cut into small pieces, is put into a glass vessel with from six to twelve times its weight of oil of turpentine. The retort is closed with a cork, through which a small hole has been made, and then heated over a coal fire to 60 or 65° F. It is sometimes necessary to stir it.

In Linseed, Hemp, or Nut-oil.—These oils are heated over a gentle coal fire to the boiling point, with or without some of the known drying substances. After ten minutes boiling, the finely-cut India rubber is introduced, and constantly stirred until everything is dissolved. To effect a quick drying of the solution, sulphate of zinc, heated until it has given up all its water of crystallization, is ground fine with oil of turpentine, and about half an ounce of it added for each pound of the India rubber solution.

In Olive Oil, or Fish Oil.—For application to different leather manufactures, three ounces of India rubber is dissolved in sixteen ounces of olive or fish oil, and sixteen ounces of a raw siccative oil is to be added. The boiling must not be continued any longer than is absolutely necessary, and no other drying materials are to be added.

To dissolve India rubber for the purpose of making leather soft and pliable, it is best to heat equal parts of India rubber and hog's lard, over a gentle coal fire in a covered vessel. From time to time it must be examined, in order to ascertain whether the India rubber is completely dissolved. After that, it is to be diluted with train oil, and the solution applied while warm to the leather. But if a solution is required to render thin fabrics water-proof, lard, train oil, and other common fat oils should be avoided; but the India rubber should be treated with oil of turpentine, or coal oil, until it is soft and swollen, and then dissolved in a varnish of linseed oil.

QUICKSILVER IN SAN MATEO COUNTY.—

The San Mateo Gazette of the 16th says: Considerable excitement was caused in Redwood City, last Tuesday, by the report that a quicksilver mine of surpassing richness had been discovered upon the ranch of Owen McGarvey, some three miles from Redwood City, on the Searsville road. Mr. McGarvey has a contract for grading and putting rock upon Main street, from the county road, near the distillery, to the railroad crossing in the eastern addition to Redwood City, and has been hauling the rock from a ledge on his ranch. The rock is hauled in large boulders as it is quarried out, and then broken up with sledge hammers upon the road, and it was while one of the men was engaged in pounding this rock to pieces, that he discovered quicksilver oozing out and trickling down among the loose rock. Some quarter of an ounce or more of the liquid quicksilver was gathered up in an old cover to a tin can and brought to this office, together with several pieces of rock, in which particles of quicksilver are visible. The rock before us does not have that reddish appearance peculiar to all cinnabar which we have seen before, but that it contains a large per cent. of quicksilver there can be no doubt. There is a mountain of rock where this came from, but the extent of the cinnabar is yet unknown. Steps will be taken to thoroughly prospect the mine without delay. H. F. Williams & Co., of San Francisco, recently negotiated for the purchase of McGarvey's ranch for \$30,000, but backed out of the trade for some reason, and, as we have been informed, forfeited \$1,000 put up as a forfeit in the first instance. Thirty thousand dollars will hardly buy Mac out about this time, we imagine.

RAILROAD BRIDGE AT OMAHA.—The Pacific Railroad Company's bridge across the Missouri river at Omaha, is to be one of the most substantial and expensive structures in this country. The bottom cord will be 55 feet above high water mark, thus avoiding the necessity of a draw. The truss is to be constructed of iron, supported by substantial stone abutments and piers. The estimated cost is \$2,500,000, and its completion, it is thought, will require two years.

Our Patent Agency.

THE PATENT AGENCY OF THE MINING AND SCIENTIFIC PRESS has been signalized with remarkable success during the past two years. The importance to the inventive genius of this coast of a thorough and reliable agency for the solicitation of Letters Patent from the United States and foreign Governments cannot be over-rated, and the Proprietors of the Press, feeling the responsibility which rests upon them, and the reward which must follow the faithful performance of their trusts, will take care to afford inventors every advantage to be secured to them through a competent and reasonable agency upon this coast.



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At all the most important Fairs held in the United States in the year 1887. Gold Medals at the American Institute Fair, New York; Mechanics' Association Fair, Lowell; Maryland Institute Fair, Baltimore. Highest Premium at the New York State Fair, Buffalo, and at the Great New England Fair, Providence. At the Fairs held on the Pacific Coast, this machine has taken

Every First Premium

Awarded on Family Sewing Machines in the LAST FIVE YEARS. If there is a Florence Machine within one thousand miles of San Francisco, that is not giving entire satisfaction, if I am informed of it, it will be attended to without express charge or expense of any kind to the owner.

SAMUEL HILL, Agent.

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VESSELS, APPARATUS, SHEET, WIRE, Etc., For all Laboratory and Manufacturing purposes. Platinum Scrap and Ore purchased. H. M. RAYNOR, 17v16-2m Office, 743 Broadway, N. Y.

Pacific Chemical Works.

Office 619 Montgomery Street, SAN FRANCISCO. Laboratory, Sixteenth street, near Folsom. FALKENAU & HANKS, Manufacturing and Consulting Chemists. Particular attention given to the Analysis of Ores, Minerals, Metallurgical Products, Mineral Waters, Soils, Commercial Articles, etc.

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Is to supply in large or small quantities:

INVALIDS, PHYSICIANS, HOSPITALS, APOTHECARIES, HOTELS, PASSENGERS, FAMILIES. With Pure Wines and Undiluted Spirits for Medicinal and Family Use.

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SAFETY LAMPS.

SIR HUMPHREY DAVY'S PATENT,

—WITH—

CLANY'S IMPROVEMENT,

For use in Oil Wells, Mining Shafts, or any other place where

EXPLOSIONS ARE LIABLE TO OCCUR

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Fire-Damp or Foul Air.

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THE SUBSCRIBER, HAVING HAD MANY YEARS EXPERIENCE in Mining and doing business connected with Mining Operations, offers his services to parties wishing to purchase mines, to examine and report upon them, to buy, report upon the titles of any mine offered for sale, and to transact any business connected with mining operations in this District. Also, he would take the Superintendency of the affairs of a Mining Company. Refer to proprietors of Mining and Scientific Press. Address, JAMES DELAVAN, 4v16-1f Lone Pine, Inyo Co., Cal.

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Wine and Commission Merchants,

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Solo agents for B. D. Wilson's celebrated Lako Vineyard and Mount Vineyard WINES and BRANDIES.

No Wines purporting to be of Mr. B. D. Wilson's production are genuine unless bearing our trade mark on package, label and seal.

We offer the above Wines and Brandy, in wood or glass, with our guaranty of absolute purity, at reasonable rates, and with a liberal discount to the trade.

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The travelling public are informed that we have renewed our lease of the

LICK HOUSE.

With sincere thanks for the liberal patronage heretofore bestowed upon us, we assure our patrons that we will continue to make this house the pride of San Francisco.

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WATER-PROOF BLASTING FUSE,

MANUFACTURED BY

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This superior article gives great satisfaction to miners, and is sold at LOW PRICES.

The No. 2 exactly fits the caps used by the OIANT POWDER CO.

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MEUSSDORFFER'S

NEW STYLE OF

DRESS HATS

For Spring and Summer, will be introduced

On Saturday, February 29th,

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Practical Mining and Milling Processes

Described.

BEAN'S

HISTORY AND DIRECTORY

—OF—

NEVADA COUNTY,

CALIFORNIA.

Containing a complete History of the County, with Sketches of the various Towns and Mining Camps, the Names and Occupation of Residents; also, full Statistics of Mining and all other Industrial Resources.

Also, description of the Chlorine and other processes; Geological Formation of the most noted mines in California, etc., etc.

COMPILED BY EDWIN F. BEAN.

Editor and Publisher of the Nevada Daily Gazette.

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Founded in 1852, it is the oldest Weekly Paper in the State, permanently established, and more widely circulated at home and abroad than any other on the Pacific Coast. In California, the Atlantic States, and throughout the entire field of its great and rapidly increasing circulation, THE GOLDEN ERA is universally regarded as a Literary and Family Journal of unequalled excellence. Among its contributors are all the best writers on this side of the Continent.

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SCRANTON PATTERN,

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112 and 114 Battery street,

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Warranted for Three Years.

The Huntington Patent Elastic Springs

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The Unholstering is done upon Huntington's Patent Elastic Springs, the superiority of which over all others will readily be seen on inspection.

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THE SUBSCRIBER, HAVING SERVED FOR THE LAST five years as Secretary of various mining companies, feels fully competent to serve in that capacity. Any parties wishing to secure the services of a Secretary can be accommodated on reasonable terms. Information given, and all necessary papers correctly made out.

Having had a long experience in the purchasing of goods and machinery for miners, parties in the mines will find it to their advantage, where purchasing agents are employed, to send their orders to the undersigned.

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BARLOW J. SMITH, M. D. Physician and Surgeon. H. C. COSGROVE, Superintendent. 21v16-3m

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Parties wishing to learn the

Working of Sulphurets

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CHLORINATION PROCESS,

Can have an opportunity of doing so by applying to the undersigned, who are prepared to give practical instruction at reasonable rates. Apply to

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—AND—

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By my Practical Mode of Teaching, any person of ordinary ability can learn to Assay Ores in three lessons, and the working of all the ordinary and refractory ores in a few weeks.

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Ores of every description assayed and worked

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NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OFFICIAL.
Alpha Consolidated.....	Annual Meeting June 15	
Adella, Storey Co., Nev., May 13, \$1.....	June 30-July 15	
Adella, Sierra Co., May 13, \$1.....	June 19-July 6	
Amador Co., dividend, \$6 per share.....	Payable May 7	
Bullion, Storey Co., May 25, \$10.....	payable immediately	
Bacon M. & M.....	Annual Meeting June 2	
Chiloneza, Mexico, May 11, \$5.....	June 18-July 6	
Crown Point, Gold Hill, Nev.....	Annual Meeting June 1	
Cherokee Flat, Butte Co., April 23, \$3.....	May 26-June 9	
Chalk Mt., Nevada, March 16, \$1.50.....	May 12-July 6	
Empire M. & M., Nev., dividend \$6.....	Payable May 15	
Empire M. & M. Co., Nev.....	Special Meeting, June 2	
Flora Glazier, Plumas Co., May 8, \$1c.....	June 25-July 15	
Folsom St. & Fort P. R. R., April 25, \$5.....	May 26-June 11	
Globe, Alpha Co., May 25, \$2.....	June 30-July 18	
Green, Lyon Co., Nev., May 19, \$1.....	June 21-July 9	
Golden Rule, Tuolumne Co., div. 50¢ per share.....	Payable Dec 26	
Gold Hill Q. & M.-dividend, \$7.50.....	Payable Feb 15	
Hartford.....	Stockholders' Meeting June 9	
Hope Gravel, Nevada Co., May 7, \$1.....	June 10-June 29	
J. L. Alpiro Co., May 4, \$1.50.....	June 12-July 1	
Irish, Storey Co., Nev., April 23, \$2.50.....	May 28-June 16	
Kentuck, div., \$5 per share.....	Payable March 14	
Lady Bryan, Storey Co., May 25, \$1.....	June 6-July 25	
Lady Bryan, Storey Co., Nev., May 2, \$10, payable immediately	June 21-July 9	
Lyon M. & M., El Dorado Co., April 21, \$5.....	May 27-June 15	
Neustra Senora, Mexico, March 27, \$1.50.....	April 23-May 7	
N. A. Wood Preserving Co., Feb. 22, \$7.50.....	April 9-April 28	
Overman, Storey Co., Nev., May 18, \$21.....	June 22-July 3	
Old Colony, Lander Co., Nev., May 12, \$5.....	June 20-July 6	
Providence.....	Annual Meeting June 20	
Reagan and Dolores, Mex., April 18, \$1.....	May 16-June 6	
Philis, Siles El Dorado Co., April 14, \$2c.....	May 25-June 16	
Rogers, Storey Co., Nev., May 14, \$1.....	June 16-July 6	
Rattlesnake, Yuba Co., April 28, \$2.....	May 29-June 15	
Segregated Behler, Storey Co., May 15, \$6.....	June 20-July 10	
S. F. New Ledge, Arizona, May 2, \$20.....	June 3-June 22	
Santiago, Silver City, dividend.....	Payable May 8	
Seaton, Amador Co., April 27, \$100.....	June 5-June 30	
Sierra Nevada, Storey Co., Nev., April 14, \$10.....	May 19-June 6	
6 Savage, Virginia, Nev., dividend.....	Payable April 15	
United States, Storey Co., Nev., April 11, \$3.....	May 21-June 9	
Virginia & O. H. Water Co.....	Dividend, payable May 9	
Whitman, Lyon Co., Nev., May 21, \$10.....	June 24-July 15	
Whitman, Lyon Co., Nev.....	Annual Meeting, June 2	
Yosemite Cons., Lander Co., Nev.....	Annual Meeting June 1	

Those marked with an asterisk () are advertised in this Journal.

FIRST STREET IMPROVEMENTS.—P. Donahue has announced his intention to erect a block of stores on First street, similar to those composing the Oriental Block, as soon as his lease to the present occupants of the Union Foundry expires, which will be in about two years. It cannot be long before the substantial improvements, which for some time past have been steadily advancing westward towards and upon Market street, must cross that great thoroughfare, and continue their way along the city front towards Rincon Point. First street is in the direct line of such improvements, and will doubtless be the first beyond Market to undergo transformation. The announcement of Mr. Donahue will doubtless encourage others, nearer to Market, to undertake similar improvements, perhaps to anticipate him. The time cannot be far distant when all our foundrymen will find it to their advantage to take up the line of march for some point near the water front beyond Mission Bay. That kind of business requires too much ground room to remain long in a locality where land is so rapidly increasing in value as that on First street.

THE COLORADO, which sails for Japan on Wednesday next, has been thoroughly overhauled, repaired, repainted, and put in the best order for comfort and safety. She will take out a new shaft to replace the present one on the Great Republic, which was broken on her last trip out. The Pacific Foundry is fitting up a spring bearing for the shaft, and heavy wrought iron collars and keys for the flanges. A duplicate crank will also be taken out, to be used in case it is found impossible to remove the one now on the broken shaft, and to provide against any other possible chance of its being unserviceable.

TO PERSONS NEEDING SPECTACLES.—Those glasses are best suited to the sight which enable the wearer to read print to the best advantage, at the distance of about fourteen inches from the face. If the book or paper be held nearer than this, it indicates a glass of too great a power; if farther, then one of too weak a power. So says C. Muller, at the spectacle emporium, 205 Montgomery street, in this city.

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New Mining Advertisements.

Globe Gold and Silver Mining Company.—Location of Works: Monitor District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of May, 1868, an assessment of two dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to I. S. Fowlers, Silver Mountain, J. Winchester, Monitor, or to the Secretary in San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the eighteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

V. B. POST, Secretary.
Office, Union street, south side, one door east of Montgomery street. my30

Lyon Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-first day of April, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names	No. Certificate.	No. Shares.	Amount.
W. N. Wade.....	68	100	\$500.00
O. L. Wagon.....	18	3	15.00
I. S. Fowlers.....	61	10	50.00
A. M. Stetson.....	64 and 65	10	50.00
G. W. Clark.....	73	1	5.00
Wm Smith.....	74	5	25.00
Mrs Henry Van Ness.....	75	4	20.00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-first day of April, 1868, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Olney & Co., auctioneers, 426 Montgomery street, San Francisco, Cal., on the fifteenth (15th) day of June, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. my30

Office Providence Gold and Silver Mining Company.—The Annual Meeting of the stockholders of the above named Company, for the purpose of electing Trustees and transacting other necessary business, will be held at the office of the Company, No. 37 New Merchants' Exchange, California street, San Francisco, on the TWENTIETH day of June, 1868, at 5 o'clock, P. M., of that day.

F. P. FOLSOM, President.
J. M. BUFFINGTON, Secretary.
San Francisco, May 28, 1868. my30

Mining Notices—Continued.

Adriatic Gold and Silver Mining Company.
Flowers District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of one dollar (\$1) per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 411 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

PAUL NEUMANN, Secretary.
Office, No. 411 California street. my23

Adella Gold Mining Company, Rock Creek, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirtieth day of May, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to the Secretary, at his office, No. 318 California street, up stairs, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.
Office, 318 California street, up stairs, San Francisco. my16

The Flora Glazier Quartz Mining Company.
Location of Works: Plumas County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of May, 1868, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 606 Battery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the ninth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. JOHNSON, Secretary.
Office, No. 606 Battery street, San Francisco. my23

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 635 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street, San Francisco. my16

Hope Gravel Mining Company. Location of Works and Property: Grass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of May, 1868, an assessment (No. 23) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 635 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the eighth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 533 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. my3

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

By MAIL.—The Mining and Scientific Press will be sent by mail to any part of the civilized world. In case of removal subscribers have only to inform us of the post office address of their old and new location, and the paper will be sent accordingly.

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth (4th) day of May, 1868, an assessment of one dollar and fifty cents (\$1.50) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery street, up stairs. my9

Nuestra Senora de Guadalupe Silver Mining Company.—Location of Works: Tayoltita, San Dimas District, Durango, Mexico.

Notice.—There are delinquent upon the following described stock, on account of assessment (No. 31) levied on the twenty-seventh day of March, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names	No. Certificate.	No. Shares.	Amount.
M. Eyer.....	57	5	\$7.50
Pat Gavanna.....	64	5	7.50
Jos Frankenhelm.....	101	10	15.00
John Greif.....	66	60	90.00
Theo Geblert.....	193	20	30.00
Val Gussner.....	70	10	15.00
Rich Gantner.....	62	5	7.50
Jos Mayer.....	77	5	7.50
E. J. Pfeiffer.....	not issued	80	45.00
H. A. Roessler.....	63	5	7.50
O. Ralsch.....	169	10	15.00
Jacob Sindel.....	not issued	5	7.50
F. Staudt.....	not issued	20	30.00
C. Scheper.....	154	5	7.50
L. van Laak.....	80	10	15.00
L. van Laak.....	93	10	15.00
Ferd Wagner.....	106	32	45.00

Of formerly unassessable stock—
Jos Assion.....191 10 15.00
Jos Assion.....198 5 7.50
Louis Kral.....108 15 22.50

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of March, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Badger & Chapman, auctioneers, N. W. corner of Kearny and California streets, San Francisco, California, on Tuesday, the nineteenth day of May, 1868, at the hour of 1 o'clock, P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

E. J. PFEIFFER, Secretary.
Office, No. 210 Post street, San Francisco, Cal. my2

Postponement.—The above sale is hereby postponed until Saturday, the thirtieth day of May, 1868, at the same hour and place. By order of the Board of Trustees.
E. J. PFEIFFER, Secretary.
my16

Old Colony Silver Mining Company.—Location of Works: Austin, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 523 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY O. HOWARD, Secretary.
Office, 523 Montgomery street, San Francisco. my16

Rogers Silver Mining Company.—Location: Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1868, an assessment of one dollar per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold and silver coin, to John Barton, Treasurer, at his office, No. 202 Sacramento street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixteenth (16th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. POPE, Secretary.
Office, No. 218 Sacramento street, San Francisco. my16

Office, 218 Sacramento street, San Francisco. please copy and send bill to this office.

Office Scenta Mining Company.—Location of Works: Drytown Mining District, Amador County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-seventh day of April, 1868, an assessment of one hundred dollars (\$100) per share was levied upon the capital stock of said Company, payable June 5th, 1868, in United States gold and silver coin, to the Secretary of the Company, at his office, Hayward's Building, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the fifth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the thirtieth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOEL F. LIOHTNER, Secretary.
Office, Hayward's Building, California street, San Francisco. my2

Whitman Gold and Silver Mining Company.
Location of Works: Indian Springs District, Lyon County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of May, 1868, an assessment of ten dollars per share was levied upon the assessable capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, room No. 10, 2d floor of No. 402 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-ninth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office 402 Montgomery street, (Room No. 10, 2d floor) San Francisco Cal. my23

Whitman Gold and Silver Mining Company.
Location of Works: Indian Springs District, Lyon County, Nevada.

Notice is hereby given, that the Annual Meeting of the Stockholders of the Whitman Gold and Silver Mining Company, will be held at the office of the Company, No. 10 second floor of Express Building, No. 402 Montgomery street, San Francisco, on TUESDAY, the second day of June, 1868, at two o'clock P. M., for the election of Trustees and the transaction of such other business as may be presented.

T. W. COLBURN, Secretary.
Office, room No. 10 second floor of No. 402 Montgomery street, San Francisco. my19

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY,
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered to the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,
Pacific Iron Works,
San Francisco, Aug. 29, 1867. 9v15tf

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3v13tf SAN FRANCISCO.

HUNGERFORD'S
Improved Concentrators.

MR. HUNGERFORD, having been absent in the interior during the summer months, and engaged in the construction of several Quartz Mills, which have also been supplied with his CONCENTRATORS, has now returned to this city, and is prepared to answer all orders for his Concentrators, which are built either at the Miners' Foundry, in this city, or at Goss & Lombard's, in Sacramento.

Orders addressed to him at this city, by mail or express, will be promptly attended to.

25v15tf MOROAN HUNGERFORD.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAO IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAO,
8v13-ly Stove Store, No. 125 Clay street, below Davis.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

12v16tf No. 625 Mission street, near Second.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 28 Fremont street, over Clerc & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and patterns of every description. Jigs-Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regulated by tho style required. 11v16-3m

OIL STOVES!

MORRILL'S

Petroleum and Universal Oil Stoves

Have proved themselves a superior substitute for Wood and Coal Stoves, in that they work quicker, are neater, bako and broil better, are MORE ECONOMICAL generally. They are portable, can be used in any room, with or without chimney, as they cut no smoke, soot or ashes. There are nine different sizes, designed for barbers, dentists, and other mechanical purposes—as well as for cooking. They are perfectly safe.

I now offer a reward of \$100 for every Petroleum Stove exploded by Naphtha delivered at my store, 18 Geary street, where they are for sale by

M. B. BULLARD,

Proprietor of Petroleum Stove for California, and Agent for Universal Oil Stoves for Pacific Coast.

N. B.—Petroleum Stoves burn Naphtha converted into a gas. Universal Oil Stoves burn Naphtha, Benzine, or Coal Oil, with non-illuminating flame and light on a wick as easy as a lamp. 21v16-3m

PACIFIC

FILE, REAPER AND MOWER SECTION
Manufactory,

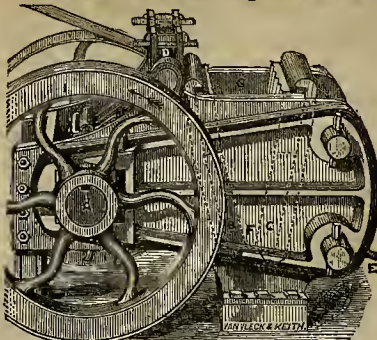
No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted as good as new, or no charge. Reapers and Mower Sections manufactured. The only establishment on the Coast.

22v16-3m First premium awarded at the State Fair, 1867.

DURNING & KENNEY, Proprietors.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENT IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price, \$600.

No. 2—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour. \$850.

No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour. \$1,200.

These Crushers have been erected at several mines in the State of Nevada, and others in Calaveras, Tuolumne and Mariposa counties, to whom applicants can be referred as being the most efficient, cheapest, and best adapted to the work, and compatible with strength and durability, of any Crusher yet erected.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATOR BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1865.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22, 1866.

JAMES BRODIE, Fulton Foundry, or CHARLES RADCLIFF, Express Building, 402 Montgomery street, San Francisco.

C. F. TRAVIS,

Manufacturer of

FRENCH

BURR

Mill-Stones,

AND

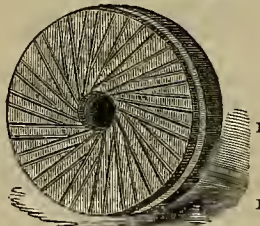
PORTABLE

MILLS.

Agent for

Dufour & Co's

Celebrated



DUTCH ANCHOR BOLTING CLOTHS. Mill Picks, Mill Picks Dressed, Mill Stones Repaired and Rebuilt; Mill Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory.

C. F. TRAVIS,
109 Mission street, San Francisco. 5v16tf

Belting and Lacing.

AN ENTIRELY NEW AND SUPERIOR ARTICLE OF exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYER, at 435 Brannan street, between Third and Fourth. Refers to Eisen Bros., Flourer Mills; Martin Sien, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturer. 6v16-3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools, 319 and 321 Pine Street, Between Montgomery and Sansome, San Francisco. 10v14tf

GLASGOW

Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,
SAN FRANCISCO.

Keep constantly on hand a large stock of best Bar and Round Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, and all kinds of Cast and Wrought Iron, which they offer to the trade on liberal terms. 21v16-3m W. MCCRINDLE, Manager.

Fire, Hose and Machine Belting.

THE SUBSCRIBER CONTINUES TO MANUFACTURE Oak Tanned Leather Fire Hose, warranted superior to Eastern Hose, manufactured at the Sixth Street Tannery, San Francisco. 21v16tf

JOHN J. FULTON.

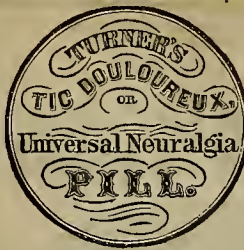
Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice. 7v16-6m

H. T. HOLMES.

Economy in Advertising.—The Mining and Scientific Press is the best and most economical mining advertising medium in this city. Our terms are less than one half the rates now charged by daily newspapers, and the mining community are beginning to appreciate our reasonable rates of advertising. The "Press" contains, proportionally a larger amount of mining advertising than any other paper on the Pacific coast. Its character renders it the proper journal for the concentration of mining patronage.

ELECTROTYPING CUTS, ENGRAVINGS, Etc.—Our Job Printing Office is abundantly supplied with elegant engravings, ornaments, and other embellishments to suit the various branches of industry in this State.



A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
NERVOUS
DISEASES.
Its Effects are
Magical.

It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can ALWAYS be used with

PERFECT SAFETY.

It has long been in constant use by many of our most

EMINENT PHYSICIANS,

who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	48 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by

TURNER & CO.,
Sole Proprietors,
9v16-6m 120 Tremont street, Boston, Mass.

THE GREATEST
NATURAL CURIOSITY

IN THE WORLD.

THE CELEBRATED

PHOTOGRAPHIC LANDSCAPE ROCK,

Cut from a solid ledge in El Dorado County, will be on exhibition for a short time, at

WOODWARD'S GARDENS.

No Extra Charge.
21v10-1m

A Book for Every Miner and Scientific Man.

JUST PUBLISHED.

KUSTEL'S NEW WORK,
CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold Bearing Sulphurets, Arsenicrets, and Gold and Silver Ores generally.

Price. - - - - - \$7.50

A liberal discount to the Trade. For sale by the Booksellers

Sent to any part of the United States, postage paid, on receipt of the price. Address,

DEWEY & CO., Publishers,

Office of the Mining and Scientific Press, 505 Clay street,
16v16tf SAN FRANCISCO.

Legitimate Photography

OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT the late State Fair for the best plain Photographs, and a special premium for the best Cabinet Portraits, to SILLAS SELLECK, 415 Montgomery street. Prices reduced to conform to Association rules. Patent secured. 25v16-6m

SULPHURETS;

What they are;
How Assayed;
How Concentrated;
And How Worked;
With a Chapter on the
BLOW-PIPE ASSAY OF MINERALS.

By WM. BARSTOW, M. D.

Published by A. Roman & Co., San Francisco.

For sale at this Office.—Price, One Dollar. With the aid of this Book, the miner can assay his own ores; requiring but few materials, etc., except such as are generally to be found in the interior towns. 21v15tf

California Labor and Employment Exchange
319 Battery Street, San Francisco.

MINING COMPANIES, MANUFACTURERS, CONTRACTORS, and employers of all descriptions of labor, are requested to send their orders to the Exchange at once. 15v16-3m H. C. BENNETT, Secretary.

AEROLITES.—At the Academy of Sciences M. Dauhree described a meteorite picked up in the Philippine Islands, and supposed to have fallen in the year 1859. Upon analysis, it was found to possess the characteristics common to the majority of aerolites hitherto collected, its density being represented by 3.6. Its constituent parts are magnesia, protoxide of iron, a little oxide of nickel, and a very small quantity of alumina. It has been bequeathed to the Academy by the late Don Casiano de Prado, Inspector-General of the Mines of Spain. Another paper on a similar subject was afterwards presented by MM. Dauhree and St. Munier jointly, in which they gave a minute account of the meteorite that fell at Murcia (Spain) in 1858, and excited much interest at the Great Exhibition last year. The density of this large block, which measures about 16 in. in length, as many in breadth, and 10½ in. in height, is 3.54. It is nearly entire, being all most everywhere covered with the well known crust, which however, is not black in this instance, but ochraceous, a circumstance attributed by the authors to superficial decomposition after its fall. Its mass presents a peculiarity not remarked in any other aerolite—a quantity of minute and very brilliant hyaline crystals. Its texture is very hard, sparks being elicited from it by a smart stroke of the hammer. It contains as much as 20½ per cent. of ferric sulphuret, about 15 per cent. of nickeliferous iron, and some traces of phosphorus; the rest is composed of silica and other minerals.—London Mining Jour. April 11th.

THE MECHANIC ARTS IN CALIFORNIA.

The following is from an editorial in the Stockton Independent of the 23d inst.:

"If California is yet unsung in the finer and more æsthetic arts, she has astounded her older sisters in practical invention as greatly as the world was astonished at them. Her young and sparse population is taking out more patents, annually, than any other State in the Union. Many of them are gems of mechanical utility, adapted to the development of her soil and mines. Several hundred quartz machines have been patented, each, in some particular, being valuable, and many improved processes of mining and metallurgy have been discovered. The sluice and hydraulic mining are Californian. In agriculture, she has invented the best gang plows known, made improvements of great value on farming implements, and is now in course of experiment on a steam plow of a new and novel plan. She applied machinery to building railroads, and manufactures some of the best safe and permutation locks known. Her polished woods are perfection in the cabinet art, and in the photographic art her pictures are exquisite gems. Stockton invention has considerable claims on public attention. Baxter's, and Matteson's gang plows have great merits, which farmers well appreciate. Pumps, windmills, agricultural implements, attachments to sewing machines, gunlocks, labor-saving harvest forks, and many other inventions that escape us at this moment, display the inventive talent of our mechanics,—all of which it is to be hoped will be exhibited at the next Mechanics' State Fair in San Francisco, that their light may not be hid under a bushel."

SCIENCE AND FUN.—A very amusing application of frictional electricity, illustrating science in a toy, has been recently patented by Messrs. Funston and Blockstone, 912 Market street, Philadelphia, in the shape of a small ornamental, shallow box, having for its bottom a plate of looking-glass. Another sheet of common glass forms the cover, and there is a space of perhaps an inch and a half between the two glasses. A variety of figures cut out of paper, or other light substance, are laid upon the looking glass, and on gently rubbing the surface of the upper glass with a handkerchief or a piece of paper, the several figures become electrified, assume the erect position, and dance about at a gait rate, much to the amusement of lookers-on. When not in use the box may be hung up to serve as a mirror. The makers furnish a great variety of forms of these toys, and the prices run from fifty cents upward. Stockholder.

WINDMILL POWER.—Smeaton ascertained that the effective power of a windmill with sails of the best form, and about fifteen and one-half feet radius, with a breeze of thirteen feet per second, is about one horse power.

SALARIES.—Louis Napoleon receives as salary \$14,240 per day; Queen Victoria, \$6,027; Francis Joseph, \$10,950; the King of Prussia, \$8,210, and the President of the United States, \$70.

PRODUCTION OF A FRAGRANT OIL FROM RESIN.—(Probably an essential oil.) Common resin lac, or kanri gum, in a state of powder, is gently heated with somewhat diluted nitric acid for a few hours; the mixture or solution is then evaporated to dryness, or nearly so, and treated with an excess of a strong solution of common soda, caustic potash, or lime in water; the resulting liquid is then transferred to a retort, and distilled. At first the distillate has an odor of garlic, but this gradually gives way to an odor decidedly fragrant. On redistilling the portion last drawn over from concentrated sulphuric acid, a strong aqueous solution of this odorous substance is obtained, the solution itself has a warm aromatic flavor, and the odor assimilates to that of peppermint mixed with lavender. Bichromate of potash with sulphuric acid, also, may be used for the oxidation of the resin employed.—*Chemical News.*

MAKING WHITE LEAD.—A few weeks ago we made a note of the fact that a new process for producing an excellent article of white lead, had been devised by M. A. Giffard; the following is the plan referred to: Granulated metallic lead is placed in a barrel, with one-fourth its weight of water. By a suitable arrangement the barrel and contents are rotated about forty turns per minute, while a continuous current of air is forced through at the same time. After revolving for about two hours almost all the lead will be oxidized, and now a current of carbonic acid is substituted for the air, and the rotation continued for five hours longer, when the true white lead, which constitutes almost the entire contents of the barrel, can be separated by decantation, washed and dried.—*Sci. American.*

EFFECT OF FROST ON LARVÆ.—In a paper addressed to the French Academy, M. Reiser announces that the general belief held by farmers, that a severe frost kills noxious insects and larvæ that grub in the earth, is a fallacy, the only effect of the frost being to drive them still deeper into the earth. He found that while the thermometer stood at 5° Fah., and the ground was covered with snow, the soil at a depth of twenty inches was not influenced by frost, and below this line the larvæ were to be found; descending still further as the cold increases.

VALUABLE
Practical and Scientific Books,
RECENTLY PUBLISHED BY
HENRY CAREY BAIRD,
INDUSTRIAL PUBLISHER,
No. 406 Walnut Street, Philadelphia.

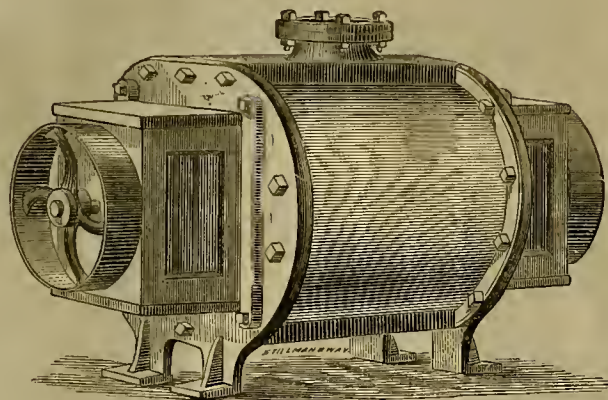
- Long-Span Railway Bridges.—By B. Baker. Illustrated, 12mo. \$2 00
- Practical Specifications of Works Executed in Architecture, Civil and Mechanical Engineering, and in Road-Making and Sowing. By John Blackman; 15 large plates, 8vo. 9 00
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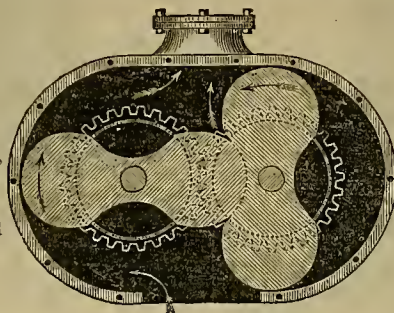
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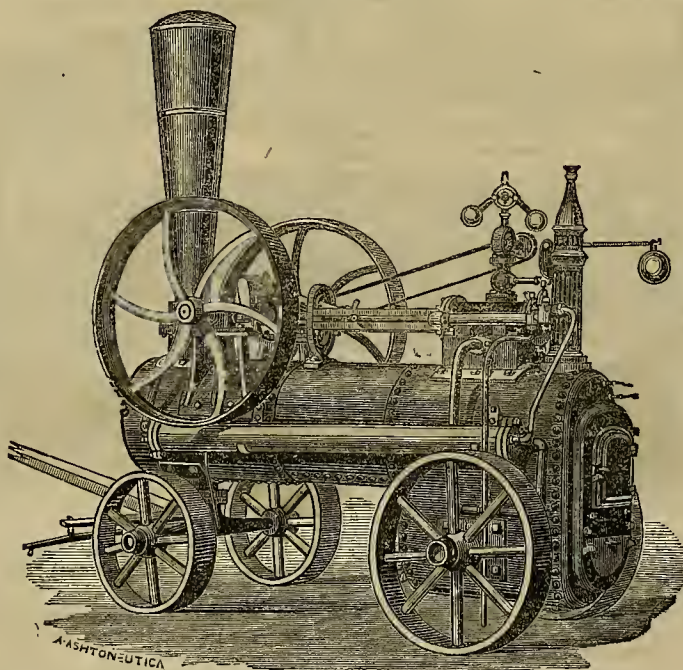
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MEETING OF UNIVERSITY REGENTS.—The Board of Regents for the new State University held a preliminary meeting yesterday, at the office of Jackson Temple, in this city. Eight members, only, being present, the Board did not organize, and of course no business was done. The first regular meeting of the Board is called for the 9th of June.

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DISEASES OF THE EYE.—During a late visit to San Francisco, we fell in with an old acquaintance from this county, Mr. O. W. Purdy, who formerly resided at Forrester City. About two years ago, while under treatment, we saw Mr. Purdy at the office of an oculist in that city, with eyes badly inflamed and the sight entirely lost. We saw him a few months later at another physician's, but his case was scarcely improved, and seemingly hopeless. His eyes have now entirely recovered, so that he goes about his ordinary business. From his own lips we learned that the restoration of his sight was entirely due to Dr. D. R. Morgan, whose office is at No. 627 Sacramento street, between Montgomery and Kearny, who cured him in the short space of eighteen weeks. Mr. Purdy mentioned several remarkable cures which occurred in the practice of Dr. Morgan during the time he was under treatment, among which was that of Mrs. Jane Albert, of Brownsville, Yuba County, and several others. Mrs. Albert had been afflicted with sore eyes from early childhood, and for eleven months previous to treatment she had not been able to discern light, nor had she seen the features of her youngest child, twelve months old. She had heard of the remarkable cure of Leonard P. Eder, of Marysville, and Joseph E. Haskell, of Sacramento, and determined to try Dr. Morgan. The result was that she was able, after ten days, to read ordinary newspaper print. Mr. Purdy was of course greatly rejoiced at the recovery of his sight, after so many trials and failures with different physicians.

The above is clipped from the Mountain Messenger, of February, 1883. 10v16 3m

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5th. It contains nothing to breed vermin or support insect life, being entirely freed in process of preparation from all deleterious vegetable matter.
Lastly. It does not pack; is free from dust; much lighter, and in general obviates all the objections to putr, prepared straw, soap root, and other inferior substitutes for feathers and hair. 22v16

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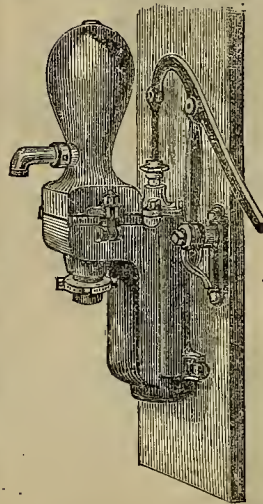
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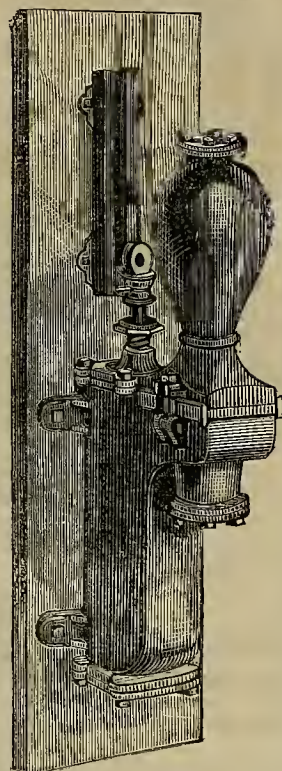


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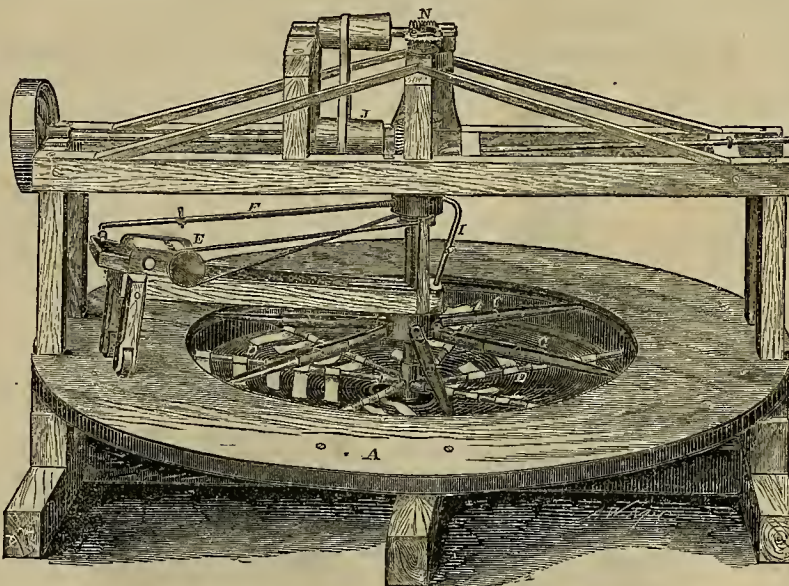
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It can be easily run by one man turning a crank. The principle on which it works is entirely dissimilar from any other machine now used on the Pacific Coast; although it is in almost universal use in Europe; but not so arranged there as to be automatic in action.

The illustration given herewith, was fully described in the Mining and Scientific Press of March 21, 1868.

One of these machines may be seen in constant operation at the Eureka (Watt's) mine in Grass Valley, where it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill, near Virginia City.

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THE BOARD OF DIRECTORS OF THE MECHANICS' Institute hereby give notice that the Sixth Industrial Exhibition of that Association will be held some time in August next, in a building to be erected for the purpose, in Union Square, in this city. Every preparation will be made to accommodate exhibitors and visitors, with a view to make the Exhibition profitable, instructive and pleasant to all parties.

During the three years which have intervened since the holding of the last Exhibition in this city, the manufacturing, mechanical, scientific and useful and ornamental arts have made unprecedented progress on this coast, and it is believed that the proposed Exhibition will exceed any other in value that has ever been held on the shores of the Pacific.

The plan of building to be erected, which has been adopted by the Board of Directors, it is believed will prove to be the best adapted both for display and convenience of the public, of any building ever erected in the State. The building will be perfectly water-tight, being covered with a shingle roof, so that no damage from the elements can be anticipated.

All parties who are interested in any of the branches of Manufactures, Mechanics, or the Arts and Sciences, are invited to exhibit in the proposed Exhibition, and to share in the publicity and consequent profit which always attends such enterprises. Suitable premiums will be offered, and the specific date of opening the Exhibition will be published at some future time.

By order of the Board of Directors.
19v16-6f HURACE D. DUNN, Cor. Sec'y.

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SAN FRANCISCO, SATURDAY, JUNE 6, 1868.

VOLUME XVI.
Number 23.

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French Patent Leather.
Death of a Tree 6,000 Years Old.
Mount St. Helena Copper Mines.
Letter from El Dorado.
Correlation of Electricity and Magnetism.
The Inevitable Future.
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Commencement at Oakland.
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Hardening Iron and Steel;
Absorption of Power by Shafts and Belts; Use of the Diamond in Cutting Glass; Phosphorus in Iron; New Method of Coating Metals.
SCIENTIFIC MISCELLANY—
The Mastodon and Tapir in California; Test for Bromine in the Presence of Chlorine; Ozone; Delicate Test for Alkalies.
MINING SUMMARY—Comprising late intelligence from the various counties and districts in California, Arizona, Colorado, Idaho, Nevada, New Mexico, Montana and Oregon.
San Francisco Weekly Stock Circular.
Notices to Correspondents.
New Incorporations—List of Officers.
Stock Prices—Bid and Asked.
San Francisco Market Rates.
San Francisco Mining Shareholders' Directory.
San Francisco Metal Market.

Jackson's Patent Grain Lifter.

This is another useful and important California Agricultural invention, which was first exhibited at the last State Fair, in Sacramento, and which, in our notice of that exhibition, we promised to more fully describe and illustrate in a future number. As the season is now approaching when

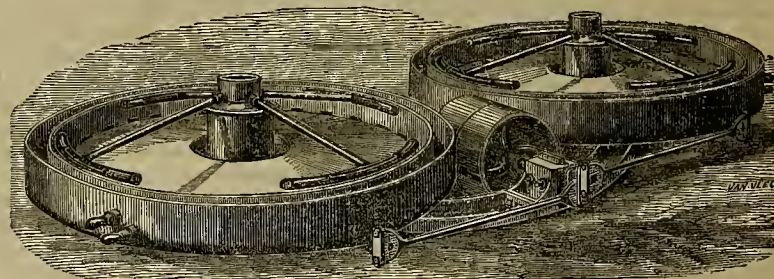
This Lifter has proved itself useful in supplying a great want of the farmer, and its discovery is considered a public benefit, as all that it saves is clear profit to the farmer. The machine, as now made, has an elasticity to pass over the roughest of ground, strength for the heaviest lodged grain, and an adjusting lever, enabling the driver, by one motion of the hand, to adjust it to any height of grain.

With this improvement, the Header is enabled to cut the worst of lodged grain with nearly the same ease as if standing, and in standing grain it saves the straw-fallen grain, which averages five per cent. The engraving will enable any person to fully understand its use, and to put the same together. The upper cut represents the lifters only; the lower represents the lifters and header combined. The header needs no alteration, except that in very heavy grain the reel should run stronger; it should be set eight inches forward. The lifters as now made are much better than those which were first offered to the public; and are sold for \$60, with two sets of

Hungerford's Improved Concentrator.

Much attention is being given at the present time, to machinery for concentrating and separating sulphurets. It is now very generally admitted that a large number of the mines which have been abandoned for the reason that they will not pay for working, may be made profitable by a careful concentration and treatment of the sulphurets which have heretofore been suffered

engraving. These are pierced with small openings through which the pulp passes to the circumference of the concentrator. The bottom or floor of the pan is built upon a regular incline from the center to the circumference, and the whole is surrounded with a circular trough. When in use, the pan is subjected to a rapid vibratory or reciprocating action, by which the sand or quartz is kept upon the surface, and passed rapidly off through the opening in the center. The sulphurets gravitate to the



HUNGERFORD'S IMPROVED CONCENTRATOR.

to go to waste. Various devices have been introduced to accomplish the concentration; but the treatment for obtaining the gold after concentration, has generally been by the chlorination process. Among the concentrators, is one which was first introduced some few years since, by Mr. Morgan Hungerford, known as the Hungerford and

bottom and toward the outer edge of the machine, seeking the lowest part of the floor. From this position they work into the outer trough through a number of small openings in the inner wall, as shown by the two light spots near the opposite extremities of Fig. 2. In the bottom of this trough they come in contact with mercury, which takes up all the fine gold, and which can be drawn, at pleasure, through an opening at the bottom; while the sulphurets can also be drawn off through openings in the sides of the trough.

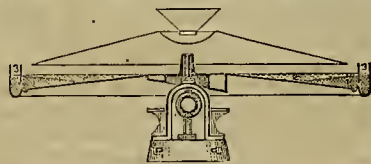


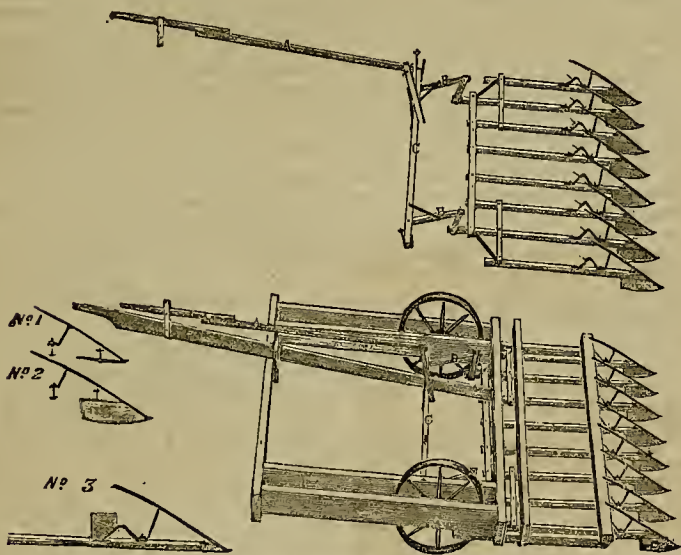
FIG. 2—Sectional View.

Prater concentrator, and which was described and illustrated in this paper soon after its introduction. Several modifications of the original machine have since been made, and great numbers of concentrators operating on that principle have been sold, and have been found to do their work quite satisfactorily. Mr. Hungerford has quite recently introduced still another modification of the original machine, an illustration of which is herewith given.

The general principle on which this machine works is known to most of our mining readers. Fig. 1 is a perspective view of the pan as now constructed by Mr. Hungerford. For economy of space and machinery, one shaft is made to drive two pans, which are set and arranged as shown in the engraving. Fig. 2, represents a sectional view of a single pan, showing how it operates in depositing the sulphurets. The pulp flows from the feeding spouts through a kind of bopper or bowl over the center of the pan, from which it is distributed through arms, as shown in Fig. 1, which have a kind of T attachment at their extremities. There are four of these arms, and their T extremities extend nearly around the entire inner circumference of the pan. The separation between them is much less than shown in the

It will be observed, by considering Fig. 2, that the sulphurets in the trough, at 3, 3, are maintained at the same elevation as the sulphurets and overlying sand in the body of the pan. It will, further, be observed, that by no possible means can the sand in the latter pass to the former in such quantities as to form any considerable percentage of the amount saved. The action of the pan is continuous, requiring no attention, except to remove the receiving vessels as fast as they are filled. These pans have been a long time in use, and appear to give very general satisfaction, as is evident from the numerous testimonials which have been submitted to our inspection, written by those who have used them, and some of which will be given in our advertising columns next week. The pan will hereafter be manufactured exclusively by the well known foundry firm of Goss & Lambard, at Sacramento, to whom communications may be addressed; or to M. Hungerford, in this city.

TO ALL INTERESTED, whether ladies or gentlemen, in promoting the welfare of the sewing women of the city, it will be a pleasure to learn that they can find better and cheaper underwear of all kinds, and childrens' clothing, at the Coöperative Union, 39 Second street, than anywhere else in the city.



JACKSON'S PATENT GRAIN LIFTER.

there is a pressing call for this class of machinery with which to gather our incoming crops, we have taken the present occasion to present our promised illustration of this machine. The object of the invention is to enable the farmer to save that portion of his grain which has been lodged or broken down, so as to lay below the reach of the "header." It runs ahead of the cutting teeth, and with its long fingers carefully picks up the fallen or trampled grain, and carries it direct to the cutting teeth; thus saving from one to two sacks of grain on almost every acre of ground—often more. Those who have used the machine—and the number of such is large—say that it saves from \$30 to \$50 per day, according to the condition of the grain. A diploma was awarded to this useful invention at the last State Fair.

fingers (long and short) as shown at No. 1 and 2. Treadwell & Co., of this city, Sacramento and Marysville, are general agents for the machine. William M. Jackson, Woodland, California, is the patentee.

ALLOYS OF TUNGSTEN WITH OTHER METALS THAN IRON.—Since the introduction of processes by which tungsten has been separated from its ores, and since its value as an alloy with iron has been made so manifest, numerous experiments have been made in the hope of combining it usefully with such metals as copper, tin, brass, German silver, etc. From the peculiar nature of tungsten, it has been thought that it might have the property of imparting additional hardness or toughness to such metals, and that they might thereby be also materially protected from oxidation. In no case, however, has any beneficial result been obtained for the metals named. Iron seems to be the only metal which can be improved by an alloy with tungsten.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

Mount St. Helena Copper Mines.

EDITORS MINING AND SCIENTIFIC PRESS. I had occasion, recently, to examine some of the copper discoveries on the N. E. side of the noted mountain above named. The principal lode, so far as is yet shown, is situated twelve miles northerly from Calistoga, in Napa Valley. It is a few hundred yards to the left of the stage road leading from the latter place to Clear Lake, outcropping on the side of a deep cañon formed by Lillie's Sawmill Creek. Mr. George Lillie discovered it about a year ago, and located a claim of 1,600 feet, which is known as the "Lillie Mine." Immediately north, an extension is located of 3,000 feet, known as the "Blackstone." There are other locations on what is supposed to be the same lead. I believe, however, the metal has only been struck in the first two, from which handsome specimens of metallic copper and some excellent ore have been taken. There seems to be really three parallel lodes about 100 feet apart, showing in both the Lillie and Blackstone claims. They are included, I believe, in the same location, being considered as one vein. Deeper explorations may prove the theory correct, but they are widely separated in their outcroppings. No distinct casings are apparent, and therefore there are no positive proofs of their being true veins. A few excavations have been made at points on the outcroppings, but none of sufficient depth to demonstrate the value of the lode. A tunnel has been commenced to strike the Blackstone at a considerable depth, and the Superintendent in charge seems to be prosecuting the work with zeal and vigor. A preliminary incline on the lode following the face of the vein matter down to a considerable depth, would have enabled him to start his tunnel with more certainty of its future usefulness. An incline shaft acquaints the miner with the varying character of his vein, in dip, breadth and lithological changes of the ore, which often differs so greatly from the surface appearances as to render the identity of the lode unrecognizable at a short depth below. The surface dip can never be relied upon, as it is almost certain to greatly change within the first hundred feet. No reasonable calculation can therefore be made of the length of tunnel required to tap the vein. Often the vein is passed through without the fact being known, from the dip changing sharply towards the tunnel; thus striking it sooner than anticipated, and at a point where the vein may be pinched to a mere thread. A change in the dip away from the tunnel, places the point to be cut so distant that the work is occasionally abandoned in despair. At times a tunnel may pass between the broken ends of a fault, and never touch the vein at all. All this trouble is avoided by following down from the surface, and a tunnel may then be located with a certainty as to its extent, availability for drainage and extraction of ore. A tunnel is rarely suitable for preliminary exploration of a mine. The folly and inutilty, as well as the ruinous expense of exploring tunnels, has been but too thoroughly demonstrated in the early and crude, but energetic workings, of the silver mines of Nevada.

Both the Lillie and Blackstone claims are favorably located for work. A fine stream of water runs through the cañon. A tunnel driven from the level of the stream would cut the veins probably four or five hundred feet deep. The inferior ores might be here stamped by water power, and concentrated. Twelve miles of transportation by wagons would reach the Napa Valley Railroad. Should the ores therefore be

abundant, even a low grade could be made available.

The strike of these lodes is northerly and southerly, with a dip of about 20° from the perpendicular to the west. They seem to be from one foot to two and a half feet in breadth. The formation is a talcose slate. It is in this same belt of talc-slate that the "Mammoth" Cinnabar lode, claimed to be five miles long, is located, which is thought by the miners to be a continuation of the Phoenix lead, in Pope Valley. A vein of chromic iron, I was told, existed not far from the Blackstone. I was unable to visit it. From the general aspect of the country, one might readily conjecture its mineral character. Mount St. Helena, and the adjacent country, is classed by Whitney among the cretaceous rocks, intermingled with volcanic formations. The volcanic rocks predominate near Clear Lake, and the district is marked by hot mineral waters, beds of sulphur and lakes of borax. Of these I shall have occasion to speak in another letter.

JOHN A. VEATCH.

EDITORS MINING AND SCIENTIFIC PRESS. Recent Washington news mentions the report that J. W. Taylor, Commissioner for the collection of statistics of gold and silver mining, was sent to the House May 2d, and that in connection with other matters which the report discusses, the Commissioner says: "It is understood that the Secretary of the Treasury has continued the mining commission of the department, directing special inquiry into the best methods for the economical reduction of obstinate sulphurets, which have hitherto obstructed the economical reduction of gold-bearing rock."

This is the most sensible and important action which the government has yet taken in regard to the mines; and if it had the proper facilities for carrying out the intention, very important results would follow, and very valuable information be obtained. If it is the duty of the Commissioner only to learn of all the means now employed for working ores, and report those which are most successful, he will be doing well. But how much more could be accomplished if the government would offer a prize for the best manner of reducing gold-bearing sulphurets, by methods not now known—say \$20,000. That would set into active thought and experiment every gold miller and miner in the country, and might do more in one year to solve the problem of gold extraction, than the inquiries of a Commissioner would in ten. The attention of our Congressmen should be drawn to this matter. The combinations of gold with its matrix are yet but imperfectly known, and very few are willing or able to pursue the investigation to the point of success. Capital that is employed in mining and reducing quartz, wants immediate returns. It will not spend itself in experiment on what is untried; but contents with what can be gained with present appliances, if it pays the percentage. If it does not, it is dropped. The idle mills all through California attest this; yet with such knowledge as could be brought out by a large offer, there need be no idle mills in the whole State.

EL DORADO.

CURIOS EXPERIMENT.—Our interior friends, in some of the remote mining cañons, who rarely hear the sound of a deep-tuned church-bell, may treat themselves to as much as they like of it, at a cheap rate, by observing the following simple directions: Take a common steel or iron poker, or indeed any bar of iron two or three feet in length, and to one end attach a piece of tape eighteen inches long, by a "clove-hitch" in the middle. Then taking one of the two tape-ends in each hand, stop your ears with your fore-fingers, carrying the tape-ends with them. Now swing the poker against a chair. The result will be highly satisfactory.

Correlation of Electricity and Magnetism.

In 1831 Faraday discovered electrical induction; it is the most important, although perhaps not the most brilliant of his discoveries. Ten years before (in 1821) he had observed a perfectly new phenomenon in the science of electro-dynamics,—that science which issued complete, as we may say, from the brain of Ampere, after Oersted's discovery. Struck by the experiments of the great French physicist upon the mutual attractions and repulsions of electrical currents and magnets, Faraday was led, by theoretical ideas which were rather disputable and not very conformable to the principles of mechanics, to assume that an electric current must turn round the pole of a magnet with a continuous movement, and reciprocally that the pole of a magnet must in like manner turn round an electric current. He verified this double result by experiment; and Ampere soon showed its accordance with his theory, adding to it other facts of the same nature. It is not the less true that the discovery of a continuous movement of rotation due to the combined action of a magnet and an electric current was quite unforeseen, and at the same time very important; for up to that time there was no example of any such action in physics. It was the first step in the course which was to yield to the finding of a relation between mechaical movement and the molecular forces.

Arago (in 1824) was the first who directly established this relation, by his beautiful discovery of magnetism by rotation; for he showed that simple mechanical movement could render a body, in itself, non-magnetic, capable of acting upon the magnet. Faraday advanced still further in 1831, by discovering that it was sufficient to bring toward, or remove from, a metallic wire forming a closed circuit, another parallel wire traversed by an electric current, or simply a magnet, in order to develop in the former wire an electric current. He discovered induction—that phenomenon which so many others had sought in vain, although suspecting its existence, but which he alone had succeeded in producing.

Let us dwell for a moment upon his fundamental experiment. Two metal wires covered with silk are rolled together round a cylinder of glass or wood; the two wires are thus isolated, and have all their spires approximate and parallel. An electric current is passed into one of these wires; immediately a current is manifested in an opposite direction in the neighboring wire, the extremities of which are united by a galvanometer; but this current only lasts for a moment. The current passing through the first wire is interrupted; immediately another current is developed in the second wire, which is momentary, as in the former case, but directed in the same way as the producing current, instead of in the contrary direction. The momentariness of these two currents, and the fact of their alternately opposite directions, constitute the two important characters of this new mode of production of electricity.

Faraday did not stop at this. Starting from Ampere's idea that a magnet is only an assemblage of electric currents arranged round an axis in a manner very analogous to the circulation of an electric current through a metallic wire rolled into a coil, he tried the replacement, in his fundamental experiment, of the wire traversed by the current by a simple magnet. For this purpose he twisted a single wire instead of two into a coil round a glass or wooden tube; then he introduced a magnet into this tube, and ascertained that at this moment a momentary current is developed in the coil of wire, and that a second, equally momentary but in an opposite direction, is developed at the moment when the magnet is withdrawn. Here, therefore, was realized that production of electricity by magnetism which Faraday had long been seeking; convinced, as he was, that, as electricity produces magnetism, magnetism in its turn must produce electricity.

ACOUSTICS.—M. Regnault, of the French Institute, has been making use of the new sewers of Paris for the purpose of testing, on a large scale, some questions in acoustics concerning which there has been doubt. By firing a pistol in the sewers of various diameters, he found that the sound was carried to the following distances: 1,282 yards in a passage of 4.2 inches diameter; 4,191 yards in a passage of 11.8 inches diameter; 10,494 yards in a passage of 43 inches diameter. The nature of the materials and the construction of such passages exercises great influence on the rapidity with which sound is transmitted.

THE INEVITABLE FUTURE.—The *American Journal of Mining*, in allusion to the recent lecture of Prof. Jevons at the Royal Institution upon the probable exhaustion of the English coal mines,—which cannot be far off, at least as regards economical production compared with the mines of "other countries,"—makes the following remarks: Suppose, then, that in fifty or a hundred years, England's great supply of power becomes so exhausted that "instead of producing more than half the total supply of coal in the world, she should produce only a small fraction of it." The result would be gradual, but the inevitable and final ruin of her commercial supremacy. It is not only the diminution of the coal that portends this change. Several important social and political signs point in the same direction.

In the first place the encroachments of Russia in Asia, and the schemes of France in Egypt and Arabia, tend to deprive the British Empire of its vast Indian provinces, or, at all events, to take from England the only thing for which she values those provinces, the Indian trade. On the other hand, the Pacific Railroad and the steamship line from San Francisco to China put New York like a toll-gate between England and that quarter of the world. English houses will be obliged to establish their branches and agencies here; American houses will multiply and wax strong; coal or no coal, the world's commercial center of gravity is changing its place.

The social condition of England herself is no less significant. Every year shows the soil of that country distributed among fewer proprietors. Large tracts of land are returning to the uncultivated condition, to serve as parks and preserves for gentlemen; the rich are constantly growing richer, and the poor, poorer. Hundreds of thousands are annually leaving the shores of their native land to seek in the New World that permanent foothold which they cannot maintain at home.

Wise proprietors of mines or factories know very well that to secure willing, faithful and permanent labor, they must give their workmen homesteads. "A cottage and a piece of ground" goes a long way. But society in England is organized on the opposite plan, and when that day has come, the portentous shadow of which already darkens the noon of national prosperity; when the diminished resources of England can no longer maintain, in spite of geographical disadvantages, her commanding commerce and manufactures, there will be nothing to prevent the workmen from leaving that soil which they do not own. The operation of all these causes may be delayed by measures of wise statesmanship; but we do not see how the result can be considered otherwise than inevitable.

THE CHLAMYDER.—In a new work by M. Pouchet, Director of the Rouen Museum of Natural History, and correspondent of the Academy of Sciences, the habits of this curious bird, which apparently cares more for a splendid than a comfortable home, are thus described:

"The speckled chlamyder is a bird resembling our partridge, but distinguished from it by its deep color relieved by clear spots, and by its neck, which is adorned with a red collar. For the location of their nest, the couple choose an open place exposed to the sun and to the light. Their first care is to make a path of round pebbles; when they deem it to be sufficiently thick, they begin by planting in it a little avenue of branches. They are seen for this purpose to bring from the country slender shoots of trees of about the same size, which they thrust solidly by the thick end into the interstices of the stoues. These branches are disposed in two parallel rows, converging a little in such a manner that they form a miniature shrubbery. The plantation is a yard in length, and is sufficiently wide to allow the two birds to walk alongside of each other in the interior. This grove being finished, they devote themselves to embellishing it. Each starts out foraging in the fields, and brings back all the sparkling objects it can pick up—pearl shells, birds' feathers, all that charms the eye. These trophies are suspended at the entrance to the grove, which soon begins to shine in the sun like a palace of the Arabian Nights. In the places frequented by the chlamyders, if a traveler loses his watch, his knife, his seal, he does not spend his time looking for it on the ground; he knows where to find it."

TELEGRAPHING FOR THE BLIND.—A telegraph operator proposes to have the blind taught to read telegraphic signals by touch and sound; and those who are deaf also, by touch alone. The idea is an excellent one.

Mechanical.

HARDENING IRON AND STEEL.—A patent has recently been obtained for an improved method of accomplishing the above named object, by a resident of Worcester, Mass. The *Scientific American* thus describes it:

The article made of iron or steel, to be carbonized or hardened, is immersed in a bath of molten cast iron and allowed to remain the desired length of time, after which it is removed and thrown into cold water. It is found that the melted cast iron works the best when heated to the degree required by foundries for pouring good castings, and when thick or large pieces are to be carbonized or hardened, it may be well to raise the heat of the molten metal still higher. The depth at which the metal will be carbonized and hardened will depend much upon the length of time it is allowed to remain in the molten bath of cast iron, and also somewhat upon the degree of heat to which the melted metal is raised, so that each operator can, by a few trials obtain almost any desired depth of carbonization or hardness, whether operating upon iron or steel. The article, if instantly drawn from the bath, as soon as immersed, and plunged into cold water, will be carbonized to a slight depth, which may be all sufficient.

It is claimed that by this plan, articles made of iron may be carbonized and hardened at slight expense, so as to have a surface equal in resistance and hardness to the best tempered steel, while at the same time they retain an elasticity which prevents their breaking.

ADSORPTION OF POWER BY SHAFTS AND BELTS.—Only the crudest means are at present available to ascertain the amount of power transmitted by pulleys and belts. So many conditions are to be considered that the construction of a set of rules for calculating the amount of power in all cases, is simply impossible. Not only the width of the belt, the diameter of the pulleys, and the relative position of the shafts, but the condition of the belts and the velocity of the shafts, must be taken into consideration, together with the peculiar circumstances which every separate case presents.

It is well known that the closest mathematical calculations, based on the style of engine, diameter of cylinder, length of stroke, velocity of piston, pressure of steam, and other points of a steam engine fail to give accurately the amount of power the machine may develop. The actual trial by means of the indicator in the hands of a skillful manipulator is the only reliable test. From one of the best—if not the best—masters of the indicator in this country, we learn that engines calculated by their builders to give a certain amount of power often so signally fail of achieving the result desired, that in one recent instance an engine calculated for 60-horse power had run for months yielding less than 26-horse power! The indicator showed the fact, and the experience of the operator detected the fault and pointed out the remedy.

Now if in a machine constructed with such care and skill as the steam engine, such a wide difference should be found between the calculated and indicated horse power, what difference should we not expect, when the test is applied to a case presenting so many points of possible variation between the intended and real amount of power as that of belt transmission? And it is the fact that in very many cases the proprietor of steam power, knowing the actual power of his engine, finds that while letting for hire what he deems is one-half of that power, his tenants are absorbing nearly the whole available power.—*Scientific American*.

SHRINKAGE OF CAST IRON.—Mr. David Walker recently read a paper before the London Association of Foreman Engineers, in which he dwelt upon the necessity of careful "feeding" by the molder to keep up the head; otherwise the casting inevitably becomes unsound. Exteriorly, it would take the form of the mold, but in the center it would be hollow; the experienced molder so arranged his feeding head as to supply those parts of the casting which were thicker than others.

ALUMINUM BRONZE.—The invention of this alloy is said to be a disputed point between France and England; the first claiming St. Clair Deville and Devray, and the latter Dr. Percy, as entitled to the merit of the invention. In the proportions of ten per cent. aluminum to ninety per cent. of copper, it resists oxidation and friction, is elastic, and has a strength nearly that of cast steel.

USE OF THE DIAMOND IN CUTTING

GLASS.—A writer in the *Scientific American* says: Not over one-half of those who use this tool do so intelligently. A true diamond-cut in ordinary glass, is a beautiful, clear, hair-like line scarce observable, and noticed plainly in silvered glass only on account of reflection. The usual so called "cut" with many is a heavy white line, something they can see, or they are not satisfied. Such a cut is mere abrasion of the glass, in the part over which the diamond has traveled.

The cutting point is found, in the ordinary glazier's diamond, somewhere between the perpendicular and the angle at which a pen is usually held while writing. This point must be sought for, and the diamond used only by one person. Here is applicable the frequently urged advice, "study the use of your tools," and have your own "kit."

The natural philosophy of the diamond-cut in glass has not yet been satisfactorily explained, though studied over by some of the first minds in this country and in Europe. After the fracture of a piece of well cut glass, the track of the diamond is marked by a serrated line (something like saw-teeth) of a beautiful regularity, penetrating to the depth of about 1-64th of an inch, varying slightly according to pressure. This appearance is quite plain to the naked eye, but under the microscope shows its full beauty and gives cause for astonishment. Thus seen it presents the idea of the line of holes in a sheet of postage stamps, with the exception that the holes are much closer, and appear as if made with an oval instead of a circular punch. A true cut is the result of much practice and study, and will become familiar by a clear, whistling, somewhat musical sound.

PHOSPHORUS IN IRON.—The deteriorating effects of phosphorus in iron, furnish a very striking illustration of Lord Palmerston's definition of "dirt"—matter in the wrong place. The phosphorus in Cleveland iron, which so seriously reduces its value in the market, and renders it necessary to bring iron from other districts to mix with the iron of the district in the puddling furnaces, and to use the ores of other districts to mix with its own—would, if extracted, even in its lowest priced form—as a manurial ingredient—be worth at least £66 per ton; as one ton of phosphorus is equal to two ton five cwt. of phosphoric acid, or four ton ten cwt. of the highest qualities of Patagonian, or seven tons of Peruvian guano. There is therefore a tolerably good margin for working expenses if the process by which the phosphorus is extracted is carried out on tolerably economical principles. For instance, iron which is now worth 47s. per ton, when containing one per cent. of phosphorus, would, if freed from this element, be worth at least as much as hematite iron, or say 54s. per ton.

A NEW METHOD OF COATING METALS.—The usual method of covering sheet iron and other hard metals with tin or alloys, has been to dip the plates first in acid and then in a solution of the coating substance. By this process only comparatively small sheets could be coated. A new one, described by the *Scientific American*, consists in spreading sheets of the coating metal upon the sheets to be coated, and subjecting the two together to heavy pressure between rollers. Sufficient heat is thereby produced, to make the two unite firmly. Sheets of any size may thus be coated with a perfectly uniform surface.

PATENT WEIGHING CUP.—A Philadelphia man has taken out a patent through the *American Artisan* office for a tin dipper so graduated by marks and numbers on the outside, that the depth to which it sinks when placed in a pail of water and steadied with the hand by the handle, will indicate the weight of its contents. All that is necessary to weigh, for example, a pound of butter, is to fill in the butter until the one-pound mark is on a level with the water.

AMERICAN CAST IRON.—An English engineer, now in New York, writes us as follows: "The cast iron here astonishes me. I saw in Brooklyn navy-yard a cast iron naval gun which had been hit by a Southern shot about four feet from the muzzle, and the shot had left its mark, impressing the rifling quite clearly. There was not a crack upon the surface of the gun; but the dent was driven right through the thickness of the gun and reproduced in the chase, so that a closely fitting shot could not be fired from it."—*Engineering*, April 17th.

Scientific Miscellany.

The Mastodon and the Tapir in California.

The *American Journal of Science and Arts* for May, has a paper from Prof. B. Silliman, announcing the fact that remains of the mastodon have been "identified as occurring under the basalt which covers the ancient gold drift, and forms the highly characteristic ranges known as Table mountains." His attention was called to such remains by discovering a portion of an *os ilium* in the collection of Judge Preston, of Jamestown, Tuolumne County, which had been found in driving a tunnel under the basalt in Table mountain, at a point 1,500 feet from its mouth. The point of a tusk was also found. Both of these specimens were secured by the Professor, and are now in the Peabody Museum at Yale College.

As further and confirmatory evidence that these bones were taken from beneath the basalt, he learned from Mr. D. T. Hughes, who is engaged in exploring a tunnel, formerly called the "Maine Boys' Tunnel," upon the southwest side of the same mountain, that at a point about 1,600 feet in, bones had been some time since uncovered, but were at the time of the Professor's visit inaccessible, owing to the falling in of a portion of the work. Upon his departure from California in January last, he urged Mr. Hughes to use all diligence in the search; and on March 24th he received from him a letter, a portion of which the Professor includes in his paper, stating that he had reached the bones, and giving a description of them as they lay. Being very much decayed, they could not be removed entire; but four grinders, which were in a tolerable state of preservation, were secured, and are now in the possession of Mr. H., who inclosed to the Professor sketches of three of them. Several fragments of the bones were obtained. Measurements were also taken of the two tusks, which lay together, and which, although large pieces of the points had apparently been broken off, were still seven feet and one inch in length. Two of the grinders measure each six inches in length by three and a half inches in width, and the other two each four and a half inches in length and two and three-quarters inches in width. These remains "were found 1,650 feet in under the Table mountain, and four and a half feet above the ledge or bottom slate, imbedded in a stratum of sand overlying a deposit of gold-bearing gravel, and scattered over a space twenty feet long by ten or twelve feet wide." Professor Silliman thus closes his paper:

From Mr. Hughes' description and the accompanying drawings, there is no room to doubt that the bones discovered are those of the mastodon, and it appears probable that nearly the entire skeleton of a full-sized animal was entombed in the sands resting immediately upon the ancient auriferous gravel beneath the Table mountains, and of course anterior in age to the period of volcanic activity and overflows of lava, which have hitherto been considered as marking the close of the Pliocene era, a catastrophe which appears to have exterminated the other members of the Pliocene fauna.

If the mastodon survived the catastrophe which exterminated the hippopotamus, rhinoceros, tapir, etc., and continued through the Post-Pliocene, to the appearance of man, it yet remains to be proved that man was his companion prior to the dawn of the existing epoch.

In the same Journal, Prof. Wm. P. Blake gives a note upon the occurrence of fossil remains of the Tapir, in California, which we give entire as follows:

The remains of Tapir occur in the auriferous gravel of Wood's creek, near Sonora, in Tuolumne county, California. They were found by gold miners at a depth of about forty feet below the surface, and were presented to me by Dr. Snell, of Sonora. A specimen submitted to Prof. Owen at the British Museum was recognized as the

"crown of the left lower molar tooth of a tapir, and another specimen as the posterior epiphysis of the cervical vertebra of a hoofed animal, probably a young tapir." Numerous teeth of the mastodon have been found in the same region, together with stone implements of various forms. Some of the latter, according to the statements of Dr. Snell, were taken from the deep placer deposits which underlie the lava of Table mountain.

TEST FOR BROMIDS IN THE PRESENCE OF CHLORINE.—Surgeon J. H. Bill, U. S. A., contributes to *Silliman's Journal* a paper upon this subject, the essential parts of which we here give:

The Fresenius test solution of auric chlorid produces in faintly acid solutions of alkaline bromids, a coloration ranging from dark orange red, to light straw color, according to the strength of the solution. Iodids must be out of the way. Chlorids, however, do not interfere in the least. The following is the best way of applying the test. Separate iodids by palladium, and after getting rid of excess of palladium, by sulphureted hydrogen, concentrate the solution to about twenty-five cubic centimeters. Select two test tubes of the same size and shape, and color of glass. Into one pour the solution suspected to contain bromid. Into the other pour pure water, adding perhaps a trace of chlorid potassium; add now to each test tube, a drop of chlorhydric acid, and then to each one drop of auric chlorid solution. On now comparing the two tubes particularly in the direction of their long axes, a yellow color will be observed in the tube containing the bromid, and made very manifest by comparison with the other tube.

The following experiment shows the delicacy of the test applied as above. One centigram of potassic bromid was dissolved in 1,000 cubic meters of water. Thirty centimeters of this solution, compared with thirty centimeters of a very weak solution of potassic chlorid, gave a decided yellow color. This experiment was varied by dissolving a gram of potassic chlorid in 2,000 cubic centimeters of water, halving, and adding one centigram of potassic bromid to the one-half. Thirty centimeters of each of the two solutions now tested, gave ample evidence of the presence of bromid.

The mixed chlorid and bromid should be brought to the state of salts of the alkalis if necessary, by precipitating with argentic nitrate, thoroughly washing, and fusing with potassic carbonate. If sodio carbonate is used, the subsequent reaction with the gold test is not so decided.

OZONE.—The *Journal of the Franklin Institute* for April, says that a youthful physicist of its acquaintance, who has one of those collections of chemicals and apparatus known as Crew's Laboratories, while trying the development of ozone by the action of a heated glass rod upon a mixture of air and ether, varied the experiment by substituting oxygen for air and a glass tube for a rod. Under those conditions, a tremendous detonation was the result of the introduction of the heated tube into the mixture. Supposing that the glass might have been too hot, he repeated the experiment, but again an explosion followed, although the tube was not sufficiently hot to burn the closed hand, when drawn through it. A glass rod was then dried, but although at a low red heat, it produced no such result.

The explanation is obvious. The position of mixed gas and vapor inside of the tube, being confined, was so completely acted upon, that ozone in sufficient purity and bulk to ignite the vapor or mixture was produced; while in the case of the rod, that part of the oxygen converted into ozone at each instant, was too rapidly diffused and diluted for such a result.

DELICATE TEST FOR ALKALIES.—According to Boettger, the coloring matter of the common ornamental plant *Coleus Verschaefeltii*, is readily turned green by alkalis. By digesting the fresh leaves for 24 hours in cold absolute alcohol to which a few drops of sulphuric acid have been added, a solution is obtained from which paper of a fine red color may be prepared. The color is not affected by carbonic acid, and hence it readily detects the presence of earthy carbonates, in natural waters. Its sensibility is very great; a piece of the paper held in the flame of illuminating gas, is at once turned green by the ammonia present.—*J. Pr. Ch.*, 1867.

The Gatling Gun.

This automatic machine gun, an American invention, appears to have proved one of the most successful inventions of the day. This gun is loaded and discharged continuously, by the simple turning of a crank. The ammunition, which is put up in metallic cartridges, is fed to the barrels from a hopper, as corn is fed to a mill. The first Gatling gun was made in 1862, in Indianapolis, Ind., the home of the inventor. The next year he had a battery of six guns made at Greenhard's establishment in Cincinnati, which was destroyed by fire in the shop. Twelve other guns, with six barrels each, were soon afterwards made at Wells' Type Foundry in the same city. Several of these were sold to the U. S. Government, and were the ones employed by Gen. Butler, near Richmond.

Important improvements were made by the inventor in 1865, and the improved gun was tried before the U. S. Ordnance Department at Washington, with so satisfactory a result, that the Chief of Ordnance ordered several larger ones made for the Department capable of throwing balls of half a pound weight. Eight accordingly were made at Philadelphia, which were submitted to a very prolonged trial at Washington, with most satisfactory results. Gen. Grant, with several other generals and Secretary Stanton, witnessed the trials. One of the guns was sent to Fortress Monroe, where it was submitted to still farther trials as a flank defence for fortifications, and with so much success that *one hundred of these guns* were immediately ordered for the United States service, the guns to be built at Colt's Armory at Hartford.

Two of these guns were exhibited in the American Department of the Paris Exposition; one of them was taken out and submitted to a trial in the presence of the Emperor and Minister of War.

The Gatling gun has since been tried in the presence of the Emperor of Austria, at Vienna; before the King of Prussia at Berlin, and the Czar Nicholas, at St. Petersburg. Official trials have also been made at the Hague, Holland, and before the officials of several of the minor governments of Europe,—all of which experiments are said to have been in a high degree satisfactory; and orders for their construction in greater or less numbers have already been received from nearly every government in Europe. Large numbers of these guns are now being turned out at Colt's armory, where their manufacture has been carried to the utmost perfection by the employment of machinery constructed expressly for this manufacture. They are made on the same plan as the government arms—each and every part being interchangeable from one gun to another. A few men with such a gun, it is believed, can do the work of an entire regiment. Such a thing as storming a position defended with a few of these guns would be utterly impossible. The patent right is owned by the Gatling Gun Company, with the principal office in the city of Indianapolis.

A NEW GAS BURNER has recently been introduced here from the eastern States, known as "Locke's Patent Self-Lighting Gas Burner," and patented in 1867. We understand that the new Mercantile Library building has been furnished with this burner, also several other places in this city. Samples can be seen at Mr. George H. Chick's, 834 Market street. We hope to give an illustrated description of this burner at an early day.

THE HUE AND CRY-OLITE FLUX.—"The Stevens flux,"—says the *American Journal of Mining*,—"seems to be going a-begging. What is the matter? Does not the Lisbon Gold Company require a new supply?" Our readers will remember that we gave a full description of this flux, its composition and its pretensions, in the Press of May 30th.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand, New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

List of patents issued from the United States Patent Office for the Pacific Coast and Territories for the week ending May 12th, 1868:

IMPROVED TRUNK LID SUPPORTER.—Samuel Wehrly, San Francisco, Cal.

IMPROVED CHART ROLLER.—E. L. Hagan, Empire City, Colorado Territory.

IMPROVED SHOE FOR AMALGAMATORS.—John H. Bullock, Gold Hill, Nev.

IMPROVED CARRIAGE SPRINGS.—Walter B. Higgins, San Francisco, Cal.

IMPROVED HARNESS LOOP.—George W. Roland, Salem, Oregon.

IMPROVED MACHINE FOR TREATING HIDES.—Herman and Louis Royer, San Francisco, Cal.

IMPROVED MACHINE FOR MAKING DRAIN PIPE.—Robert Skinner, San Francisco, Cal.

IMPROVED BOOT AND SHOE LAST.—James H. Swain, San Francisco, Cal.

PATENTS RECENTLY ISSUED.

77,183.—IMPROVEMENT IN CHART ROLLERS. E. L. Hagan, Empire City, Colorado Territory:

I claim the chart roller constructed as described, consisting of the case C, having the hinged lid H, and adapted to receive the chart rollers B, said chart passing through the curved opening E, their operating cords F, passing through separate openings in front of the charts as herein shown and described.

77,674.—IMPROVED APPARATUS FOR PRODUCING MOTIVE POWER.—Edward Stockton and William O. St. John, Folsom, Cal.:

1. I claim the combination and arrangement of the springs I, L, weights P, P, and gears J, J, said gears being so connected with their respective shafts that they remain stationary, while the shafts are turned to wind up the springs and weights.

2. The ratchet-wheels L, L, for connecting the gears with the shafts, in combination with the couplings E, E, substantially as and for the purposes described.

This invention relates to that class of machines for obtaining motive power by the employment of springs, weights, wheels and pulleys, for driving windmills, pumps, churns, grindstones, etc., etc., and supplying power for other purposes, and consists in attaching steel springs to a shaft placed transversely across a frame which is permanently attached to a bed. Two other shafts are also placed transversely across the frame, the spring-shaft and center-shaft being geared together, and operated by toothed wheels. The outside or front of the two shafts above named is a driving-shaft, and is engaged by the teeth on the gear-wheel of the center-shaft. This shaft has a pulley at one end, and a crank near the other end. To the center-shaft are attached cords or chains, passing over grooved wheels, which are attached to a roller that is suspended above the machine. The center and spring shafts are provided with keys, for winding up the springs and drawing up the weights. Ratchet wheels, provided with pawls, are placed upon the shafts beside the two toothed wheels, which prevent the springs and weights from running down and unwinding, except by the operation of the driving-shaft.

77,918.—IMPROVED HARNESS LOOP.—Geo. W. Roland, Salem, Oregon:

I claim a winged metallic loop for attachment to harness, constructed to operate substantially as described.

77,920.—IMPROVED MACHINE FOR TREATING HIDES.—Herman and Louis Royer, San Francisco, Cal.:

1. We claim the vertical shaft B, with a slot B', and set-screws b, b, h, said shaft having a forward and back motion, substantially as and for the purpose described.

2. The pins or rollers c, c, c, set in rings D and D', together with the grooved weight I, substantially as and for the purposes described.

This invention is designed to provide an improved machine for converting raw hides into a leather suitable for beltings, lacings and other purposes where it is desirable to

preserve the native strength and toughness without destroying or impairing the natural fibers or grain of the skin. To accomplish this object, the inventors employ a machine mounted on a suitable frame, having a vertical slotted shaft, to which is attached, at its base, a beveled wheel between two beveled pinions upon a horizontal shaft. Around the vertical shaft is placed a row of vertical pins or rollers, held in place by upper and lower rings, one of which is firmly bolted to the frame. An iron weight or press is employed for crowding the coil of hide down after it has received a forward and back action around the shaft. This action produces the desired result of stretching in one way, compressing, corrugating or roughening in the opposite direction. The pressure downwards by the iron weight compensates in a measure for the stretching of the hide lengthwise in the action about the shaft. The hide, after being thus operated upon, is treated with oil or tallow in the usual way, but not blacked. By this treatment the leather is rendered very tough, and the natural fibers or grain is not injured; but is rendered stronger and more lasting, for the purposes designed, than by any other machine or process.

77,925.—IMPROVED MACHINE FOR MAKING DRAIN PIPE.—Robert Skinner, of San Francisco, Cal.:

1. I claim the follower G, constructed with slots G' G' and the curved openings, F F, in which it slides in combination with the stationary core E, and ring N, substantially as and for the purpose set forth.

2. In combination with the above claimed apparatus, I claim the steam jacket J, for heating the same, and the material worked thereby, substantially as described.

The object of the above invention is to provide an improved machine for making drain and water-pipes. It consists of a stationary cylinder, in which a core is placed; a follower, attached to a piston-head, moves up and down around the stationary core, passing through slots in a center-block. A close-fitting packing ring is placed around the core, and slides up and down upon it by the action of the piston or follower. Another ring is placed at the top of the cylinder, and the cement or material of which the pipe is made is held between the two rings around the core in the cylinder. A cross-head is placed over the top ring, which is regulated by hand-wheels or set-screws. The pressure upon the material between the two rings is derived from the engine driving up the piston. Power is applied to the piston end of the machine, either by steam, by hydraulic or any other power that will produce the required pressure.

77,931.—IMPROVED BOOT AND SHOE LAST.—James H. Swain, of San Francisco, Cal.:

I claim the projection or flange C, or its equivalent on the face of the last, substantially as for the purpose specified.

This invention relates to the construction of an improved last for the manufacture of nailed or pegged boots and shoes. It consists in attaching a metal bottom or sole to the ordinary last. This bottom or sole has a projection or flange on its face, so that when the nails or pegs are driven through the sole, they will be battered down or turned up and clenched, and not protrude, as is the case when a wooden last or a metal face or bottom is employed without the flange or projection around it. In the manufacture of cased work, the screw as it penetrates through the leather sole, will be arrested by the projection upon the plate before it penetrates too far, thereby rendering it necessary to cut off the projecting end. If the last is made entirely of metal, the flange may be cut upon the face, in the same manner as it is now cast with the plate.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

BEAR RIVER MINING CO.—May 29th. Capital stock, \$300,000; 3,000 shares, \$100 each. Trustees: Geo. Clark, A. G. Picr, J. M. Buflington, W. J. Stringer and Wesley Henderson.

CALIFORNIA ANCHOR CO.—June 4th. Capital stock, \$600,000; Trustees: Wm. H. Ladd, H. F. Williams, Wm. H. Lyon, G. A. Lloyd and C. A. Stewart.

ELECTION OF OFFICERS.—CROWN POINT MINING CO.—Trustees: J. D. Fry, Thomas Bell, A. Hayward, Thos. Sunderland and R. Sherwood; President, J. D. Fry; Secretary, Charles Elliot; Superintendent, Thomas C. Taylor.

THE SUBMERGED PUMP AS A HYDRAULIC PROPELLER.—The American submerged pump, which was lately described in this paper, is adapted to other uses than those mentioned in a previous article, as will be seen from the following statement:

In one of Admiral Farragut's letters, describing his visit to England, is an account of the Ruthven hydraulic propeller, which has been applied to an English iron-clad of 700 tons, the *Water Witch*. This propeller, as it is termed, is very different from the invention generally known by that name. Water rises from below into a box, whence a rotary pump, worked by steam, throws it with great violence into two square boxes placed on the outside of the vessel, one on each side, nearly amidships, and about the water-line. These boxes are square tubes, ten or twelve feet long, and twelve inches in diameter, open at both ends. Near the center is a valve, under the control of the officer of the deck, and as he turns it, the water is thrown with great force, either forward or aft, thus propelling the vessel either ahead or astern, at his will. The Admiral took a trip in the *Water Witch*, and was surprised to find that she sailed at a speed of seven miles an hour against a fresh breeze and quite a sea, and under more favorable circumstances made nine knots an hour. There was no interruption of the machinery, and the movements of the vessel were wholly controlled by the officer of the deck, who, by working the valves spoken of, can go ahead, back astern, or turn the vessel on her center. The Admiral says that on her return she was kept at a speed of nine knots till within fifty or sixty yards of the wharf, when she was suddenly checked, and brought to her landing with infinitely more ease than any steamer he ever saw. About a year before the Admiral's visit, the same steamer was tried with plunger pumps, and made, with them, fifteen knots an hour. But the packing of the pistons would not stand the strain, and as they were liable to get choked at sea, they were replaced by the rotary pumps, which required more power and gave less speed. The American submerged pump would, however, answer all the requirements of this propeller, and the absence of all packing would remove one of the drawbacks which necessitated a change of pumps, even at the expense of a serious loss of power, in the *Water Witch*.—*Times*.

A SKILLFUL OCULIST.—It affords us pleasure to mention the success which has for the past few months attended the practice of Dr. D. R. Morgan, of San Francisco. We have had occasion to speak of several remarkable cures effected by this gentleman, before, and we have recently seen several patients of his, some of them fully recovered, and others partially restored from total blindness, from which they had sought relief in vain, through other practitioners, among which we may mention the case of Mrs. Jane Young, of Virginia City, who was for several months under the care of an able physician at Sacramento. She was afflicted with very sore eyes for about eight months, and much of the time was unable to see anything. We saw her after sixteen applications by Dr. Morgan, with sight sufficiently restored to read coarse print, and the eyes fast regaining their healthful luster. She is also recovering her hearing, which had been lost to all ordinary sounds.

William H. Casson, of Nevada City, a boy of thirteen, had a total eclipse of one eye, and could see but little from the other. After five weeks' treatment he had recovered sufficiently to read the bill of fare at the International Hotel, printed in nonpareil. He was still under treatment. Mrs. Francis, of Santa Cruz, was another case of total blindness, extending over an afflictive period of twenty-one months, until hope and patience were both nearly exhausted. Her's was a case of very rapid recovery, and a great cause of rejoicing with herself and family.

We do not, in mentioning these remarkable cures, wish to convey the impression that all his cases result so happily, in such a brief space of time. Although we believe that the Doctor has had great success from the start, we do not claim the performance of miracles, but merely the application of great skill in the profession which the Doctor has taken up as a specialty, which covers an extended field of practice in this State in which physicians generally have not attained much success.—*Mountain Messenger*.

RAINFALL NIGHT AND MORNING.—It is stated as the result of careful experiments for six years at the Greenwich Observatory, that rain is more frequent between noon and midnight. The smallest rainfalls take place in the morning, as the sun is going up; the greatest in the afternoon, as the sun is setting.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
JUNE 6, 1868.

Financial.

It is too soon yet to enter upon any calculation as to the volume of money that will be required to move the maturing crops. Some have expressed a doubt of there being coin enough for this purpose, without seriously embarrassing other commercial relations; but we can see no good ground to predict such a result. The crops will undoubtedly be the largest ever raised in California; but we believe they have been, in some cases, largely over-estimated. Should they, however, realize to the fullest extent the estimates made, they will probably be moved without serious detriment to other business.

Money is in abundant supply, notwithstanding the reported heavy shipments made via Panama and to Oriental countries. Legitimate business wants find ready accommodation, in bank, at 1 1/4 to 1 1/2 per cent. Large loans, upon real estate securities, are effected readily at 10 to 12 per cent. per annum. Our savings and loan institutions continue to augment their deposits, in the face of a brisk demand. Those recently established in this city, as well as in several of our interior towns, are doing as well as can be expected under the large accommodations furnished. Bullion is in moderate supply, and is quotable at \$800.000 for gold bars; silver bars are variously given, from par to 1/4 and 1/2 per cent. premium. Currency bills on Atlantic cities are worth 37 to 38 per cent. premium on gold; sight drafts, payable in coin, 1/4 to 1/2 per cent. premium; telegraphic transfers, 10 to 14 per cent.; sterling exchange, 48 1/2 to 49 1/2; commercial exchange, 49 1/2; Mexican dollars, 4 1/2 to 5 per cent. premium; exchange on Paris, 5 francs for 30 days.

The real estate transactions for May last were \$654,893 in advance of those for the same month in 1867. Sales were lively, but with less of the speculative movement which characterized the months of January, February and March. The total amount of money which changed hands last month was \$2,107,263, being a decrease of \$257,094. The number of sales made was 522, being 171 less than in April, and 209 less than in March. The sales made so far, each month this year, according to *Carlier's Circular*, have been as follows:

Month.	Sales.	Value.
January.	433	\$1,713,597
February.	514	2,340,000
March.	731	3,825,943
April.	693	3,943,262
May.	522	2,107,263

It will be seen that since January 1st, 1868, no less than 2,993 sales of real estate were effected in this city, and that the enormous amount of eleven and a half millions of dollars changed hands.

The number and value of mortgages and releases for the same period will be found in the subjoined tables:

Month.	Mortgages.	Value.
January.	205	\$914,293
February.	252	982,012
March.	293	1,325,263
April.	267	1,022,752
May.	260	906,270

Month.	Releases.	Value.
January.	1287	\$1,610,810
February.	1268	1,118,535
March.	1283	607,320
April.	1196	498,494
May.	1174	529,463

For a city of 134,000 inhabitants, the foregoing figures show an unmistakable liveliness in the real estate market. We are pleased to note that there is a greater tendency to embark capital in enterprises of a legitimate character, outside the city, with the view of improving the country and developing its resources, instead of investing in real estate speculative transactions, in the hope of more speedy returns. The far-sighted man of business comprehends that the value of real estate in and around San Francisco must depend wholly upon the progress, character, and value of her natural tributaries. Vigorous efforts are still being made to clear up titles, and dispose of those which have nothing better to recommend them than the efferonery with which they have been urged as valid. The new system of selling homestead lots for a small amount paid down, and the balance payable in moderate monthly instalments, is productive of much good. Persons never before noted for economical characteristics, have been induced to embark in these purchases, and, in course of time, will come into possession of valuable real estate property. This is a pleasing and easy manner of inculcating habits of thrift and economy, and will produce good fruit in a moral as well as substantial way.

City Stocks.

A few shares of Union Insurance Company stock sold at \$89 per share; Spring Valley Water at \$68 to \$67, and California Steam Navigation Company at 69 1/2 to 69 3/4 cent, and 70 to 71. The Gas Company paid its usual monthly dividend on the 1st inst., and the Pacific Bank 1 per cent. on the same date. A special meeting of the stockholders of the National Insurance Company will be held on Friday, June 12th, at 1 o'clock, for the purpose of considering and voting upon the question of dissolving and reincorporating. For Home Mutual Insurance Company stock \$19.60 has been offered. It is the intention to re-organize this company with a paid up capital of \$200,000.

Mining Share Market.

The mining share market has been somewhat inactive since our last reference, and the sales have fallen off considerably in volume. There is a lack of animation throughout the whole list, and transactions generally exhibit more than usual variation, in most instances showing a recession from former prices. Many look for a reaction in the course of several weeks, and this we may expect, judging from the present sphy and unusual dullness in this class of stocks. Under the present aspect of the market, speculation has received a check, and outsiders, for the moment, have in a great measure ceased investing.

The Assessor of Storey county, Nevada, for the first quarter of 1868, returns the product of twelve claims on

the Centstock lode to be 45,435 tons of ore, valued at \$1,334,983. If we compare this aggregate with our quarterly statement published in April, wherein seven companies in January report a product of \$411,016, nine in February, \$431,333, and ten in March, \$711,097, total, \$1,554,016, we find a difference of nearly \$250,000, and in this exhibit in no single month do we give the returns of twelve companies. The same authority states the yield of seventeen companies, during the quarter ending December 31, 1867, to be 94,912 tons of ore, showing an aggregate product of \$2,458,392.

By resolution of the San Francisco Stock and Exchange Board, adopted on the 1st inst., all stocks will be hereafter sold and quoted by the share.

Justice and Independent Company levied an assessment of \$5 per share on the 26th of May, and Union \$5 per share on the 2d of June.

CROWN POINT—advanced from \$117 to \$124, declined to \$117, and closed at \$116 50. The bullion product for the month of May aggregates \$108,677, against \$169,074 in April. The expenses for the month just closed were about \$77,000. The mine continues to look well. Porphyry has made its appearance on the east side of the south drift, but it is thought to be only a bunch, and its pay ore is found on the east side of it; otherwise the face looks well. Later, by telegraph, we learn that less porphyry is now encountered. The drift is now 121 feet from the lode. From the annual report of the Superintendent of the Crown Point Mining Company, closing May 1, 1868, we learn that 25,888 tons of ore were extracted, as follows: From West Body, 18,392 tons; East Body, 166, 6,730; 600 level, 7,315; 700 level, 3,645; and 800 level, 166. "The bodies of ore on the 800 level," says the Superintendent, "are not sufficiently opened to form any estimate of the amount known to exist in the three different strata. Between the 500 and 700 levels we can safely count on between six and seven thousand tons now in place, in east and west bodies, and numerous others that will not be included." From the Secretary's annual report for the year ending May 1, 1868, we make the following extracts:

RECEIPTS.	
Cash on hand, May 1, 1867.	\$57,051 30
Bullion.	886,028 60
Assessment.	60,000 00
Other receipts.	25,115 14
	\$1,006,195 04

DISBURSEMENTS.	
Dividends.	\$48,000 00
Mining expense.	240,744 34
Milling expense—company.	162,116 27
Milling expense—outsider.	115,941 57
Legal expense.	79,394 18
Mine improvement.	17,851 97
Mine improvement.	86,212 03
Salaries, office rent, etc.	10,400 00
Taxes, assaying, etc.	31,459 67
Cash in Treasury, May 1, 1868.	127,682 53
	\$1,008,195 01

The cash on hand is \$76,631 25 in excess of previous year; bullion receipts \$381,999 87 less. Including an assessment of \$60,000, the entire receipts show a diminution of \$348,117 18 as compared with last annual statement. In the previous fiscal year the dividends amounted to \$372,000 against \$48,000 disbursed during the year just closed. There were 25,964 tons of ore reduced, making the average yield per ton for the entire year, \$33 35. The average cost of reduction has been as follows: 14,184 tons at Rhode Island mill, \$31 52 per ton; 11,773 tons at Santa Clara mill, \$34 70, 6 1/2 tons at Ophir mill, \$46. The cost of mining 25,964 tons was \$9 85 per ton against 34,750 tons at \$7 60 in the previous year. The assets are stated to be \$294,765. This company will probably declare a dividend of \$7 50 per share, or \$150 per foot, and will be made payable on and after the 12th inst.

KENTUCK—In slight request, improving from \$416 50 to \$430, and closing at \$410. Bullion receipts for May account aggregate about \$109,000, and the expenses for same month are estimated at \$62,000. A dividend of \$30 per share is payable on and after the 10th inst.

SAVAGE—sold at \$150 50 to \$157 00, then at \$165, and closed at \$160. During the week ending May 30th, 1,550 tons of ore were extracted, showing an approximate value of \$60,000. The entire mine, on the fourth station, contributed 913 tons of the above amount. The estimated profits of the ore extracted during the past four weeks, as per weekly statements, amount to \$106,277. The west streak in the third station north is said to open out well, and extends down at least fifty feet below the old seventh station. The Potosi chimney on same level has yielded eleven tons of first-class ore during the week under review, and the fourth station continues to improve in raising, showing already a considerable body of ore. In the south mine, same level, the breasts are looking better than before. In the north drift, fifth station, much trouble is experienced on account of broken quartz and water. The south drift, same level, is reported to be in good ore, and the breast just opening looks better than it did the previous week. Sinking of shaft has been stopped, in order to re timber it, and it will probably take a month before the sixth station will be opened.

CHOLLAR-POTOSI—exhibited a very marked advance, rising from \$244 to \$285, declining to \$260, advancing to \$287 50 and closing at \$286. The bullion product of the mine amounted to \$64,839 75 against \$46,676 in April. During the week ending May 29th, 893 1/2 tons of ore were sent to custom mills; 717 tons were extracted from the Blue Wing level same time. In the new shaft the incline has been advanced twenty-five feet during the week, and should the rock work as well as at present, they expect to have it deep enough in the course of a week to place timber at the 1,100-foot station—vertical measurement from mouth of shaft.

AMADOR—sold at \$287 60 to \$290. The May receipts of bullion amounted to \$44,251 80 against \$42,412 in April. A dividend of \$10 per share will be paid on the 20th inst. GOLD HILL QUARTZ sold at \$120. The bullion receipts for May aggregate \$11,066 10 against \$9,736 81 in April.

INTERNAL—was in slight request, selling at \$208 to \$195, and closing at \$196. The lower drift now runs in tough clay and porphyry, and they are advancing at the rate of four feet per day. LADY BRYAN sold at fluctuating rates, closing at \$33. Dispatches of the 4th inst., state that the injunction would come up for argument on the following day.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,307,686; open sessions, \$452,118—total, \$1,859,804. In May the sales amounted to \$10,162,396, and for the first five months of the current year \$52,290,370 against \$24,247,002 same time in 1867.

EXCELSIOR!—Still higher is over the cry of the true artist, who, not content with mere mediocrity, aims ever to reach the highest walks of his profession. In adopting this motto for their splendid new Photographic Gallery at No. 649 Clay street, Mr. J. R. Mains, and his partner, Mr. McCabe, have shown to the public upon what plan they intend to conduct. Every style of photographic picture is there obtainable, made in the best and most tasteful style of the art, and at very reasonable prices. But it is only necessary to mention that the well-known and popular J. R. Mains is the operator, and the public know the rest themselves and will seek him at once.—*Golden Era.*

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DISTRICT OR COUNTY.	DATE OF MEETING.	DATE OF DELINQUENT SALE.	DATE OF PAYMENT OF DIVIDENDS.
Alpha Consolidated.	Alameda.	June 11.	June 11.	June 11.
Astoria, Storey co., Nev.	Nevada.	June 21.	June 30—July 15.	June 21.
Atolia, Sierra co., May 13.	Sierra.	June 19—July 6.	June 19—July 6.	June 19—July 6.
Amador 50, dividend, \$6 per share.	Amador.	June 19—July 6.	June 19—July 6.	June 19—July 6.
Bullion, Storey co., May 25.	Storey.	June 11.	June 11.	June 11.
Chilonena, Mexico, May 11.	Mexico.	June 11—July 6.	June 11—July 6.	June 11—July 6.
Cherokee, Bull, Builo co., April 23.	Builo.	June 26—June 9.	June 26—June 9.	June 26—June 9.
Chukit Mt., Nevada co., March 16.	Nevada.	May 12—July 6.	May 12—July 6.	May 12—July 6.
Empire M. & M., Nevada co., dividend \$6.	Nevada.	June 11.	June 11.	June 11.
Fozna, Amador co., June 3.	Amador.	June 11—July 25.	June 11—July 25.	June 11—July 25.
Flora Glazier, Plumas co., May 8.	Plumas.	June 25—July 1.	June 25—July 1.	June 25—July 1.
Folsom St. & Port Pt. R. R., April 25.	Alameda.	May 26—June 11.	May 26—June 11.	May 26—June 11.
Globe, Alpine co., May 25.	Alpine.	June 23—July 6.	June 23—July 6.	June 23—July 6.
Globe, Alpine co., May 25.	Alpine.	June 23—July 6.	June 23—July 6.	June 23—July 6.
Golden Rule, Tuolumne co., dividend \$6.	Tuolumne.	June 24—July 9.	June 24—July 9.	June 24—July 9.
Gold Hill M. & M.—dividend, \$7 50.	Alameda.	June 11.	June 11.	June 11.
Hartford.	Storey.	June 9.	June 9.	June 9.
Hope Gravel, Nevada co., May 7.	Nevada.	June 10—June 29.	June 10—June 29.	June 10—June 29.
I X L, Alpine co., May 4.	Alpine.	June 13—July 1.	June 13—July 1.	June 13—July 1.
Julia, Storey co., Nev., April 23.	Storey.	June 28—June 16.	June 28—June 16.	June 28—June 16.
Kanaka, May 30.	Alameda.	July 3—July 14.	July 3—July 14.	July 3—July 14.
Kentuck, dividend, \$5 per share.	Alameda.	June 25—June 14.	June 25—June 14.	June 25—June 14.
Lady Bryan, Storey co., May 25.	Storey.	June 6—July 25.	June 6—July 25.	June 6—July 25.
Lady Bryan, Storey co., Nev., May 2.	Storey.	June 28—June 15.	June 28—June 15.	June 28—June 15.
Lyons M. & M., El Dorado co., April 21.	El Dorado.	May 27—June 15.	May 27—June 15.	May 27—June 15.
Neustra Senora, Mexico, March 27.	Mexico.	April 28—May 7.	April 28—May 7.	April 28—May 7.
N. A. Wood Preserving Co., Feb. 29.	Nevada.	April 9—April 28.	April 9—April 28.	April 9—April 28.
Overman, Storey co., Nev., May 18.	Storey.	June 22—July 3.	June 22—July 3.	June 22—July 3.
Old Colony, Lander co., Nev., May 12.	Nevada.	June 20—July 6.	June 20—July 6.	June 20—July 6.
Providencia.	Storey.	June 20.	June 20.	June 20.
Patocina and Dolores, Mex., April 15.	Mexico.	May 18—June 6.	May 18—June 6.	May 18—June 6.
Pella, Slides El Dorado co., April 14.	El Dorado.	May 25—June 15.	May 25—June 15.	May 25—June 15.
Rogers, Storey co., Nev., May 14.	Storey.	June 16—July 6.	June 16—July 6.	June 16—July 6.
Rattlesnake, Yuba co., April 23.	Yuba.	May 29—June 15.	May 29—June 15.	May 29—June 15.
Silver Sprout, Yuba co., May 11.	Yuba.	June 30—July 15.	June 30—July 15.	June 30—July 15.
Sand Spring, dividend \$1.	Alameda.	June 5—June 25.	June 5—June 25.	June 5—June 25.
Serrano, Storey co., Nev., April 14.	Storey.	June 5—June 25.	June 5—June 25.	June 5—June 25.
S. F. Moss ledge, Arizona, May 2.	Arizona.	June 5—June 25.	June 5—June 25.	June 5—June 25.
Santiago, Silver City, dividend.	Alameda.	June 5—June 25.	June 5—June 25.	June 5—June 25.
Seaton, Amador co., April 27.	Amador.	June 5—June 30.	June 5—June 30.	June 5—June 30.
Sierra Nevada, Nevada co., April 14.	Nevada.	June 10—June 29.	June 10—June 29.	June 10—June 29.
Savage, Virginia, Nev., dividend.	Nevada.	June 15—June 25.	June 15—June 25.	June 15—June 25.
Union, Storey co., Nev., June 2.	Storey.	July 7—July 28.	July 7—July 28.	July 7—July 28.
United States, Storey co., Nev., April 11.	Storey.	May 21—June 9.	May 21—June 9.	May 21—June 9.
Virginia & O. H. Water Co., dividend.	Alameda.	June 15—June 25.	June 15—June 25.	June 15—June 25.
Whitman, Lyon co., Nev., May 21.	Nevada.	June 24—July 15.	June 24—July 15.	June 24—July 15.

* Those marked with an asterisk (*) are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, JUNE 5, 1868.	
MISCELLANEOUS STOCKS.	Bid, Asked.
United States 7-30ths Bonds, June Issue.	77 1/2 78 1/2
Legal Tender Notes.	71 1/2 72 1/2
California State Bonds, 1860.	89 1/2 90 1/2
San Francisco Bonds, 1861.	102 1/2 103 1/2
San Francisco City Bonds, 1865.	82 1/2 83 1/2
San Francisco City and Co. Bonds, 1865.	87 1/2 88 1/2
San Francisco City and Co. Bonds, 1862.	87 1/2 88 1/2
San Francisco City and Co. Bonds, 1864.	84 1/2 85 1/2
San Francisco City and Co. Bonds, 1863.	84 1/2 85 1/2
San Francisco City and Co. Bonds, 1864.	84 1/2 85 1/2
Sacramento City Bonds.	22 1/2 23 1/2
Sacramento County Bonds, 1866.	75 1/2 76 1/2
Marquette Bonds, 1865.	75 1/2 76 1/2
Stockton City Bonds.	70 1/2 71 1/2
Yuba County Bonds.	75 1/2 76 1/2
Santa Clara County Bonds, 1865.	75 1/2 76 1/2
Butte County Bonds, 1865.	70 1/2 71 1/2
San Mateo County Bonds, 1865.	85 1/2 86 1/2
California Steam Navigation Co.	102 1/2 103 1/2
Spring Valley Water Co.	68 1/2 69 1/2
State Telegraph Co.	25 1/2 26 1/2

GAS COMPANIES.	
San Francisco Gas Co.	69
Sacramento Gas Co.	80

RAILROADS.	
Sacramento Valley Railroad.	40 1/2 41 1/2
San Francisco and San Jose Railroad.	40 1/2 41 1/2
Oroville Railroad.	6 1/2 6 3/4
Central Railroad.	50 1/2 51 1/2
Napa Beach and Napa Railroad.	11 1/2 12 1/2
Front Street, Mission and Ocean Railroad.	11 1/2 12 1/2

BANKING INSTITUTIONS.	
California, Loan and Savings Society.	90 1/2 91 1/2
Bank of Pacific.	157 1/2 158 1/2
The Bank of California.	157 1/2 158 1/2

INSURANCE COMPANIES.	
Fireman's Fund Insurance Co.	85 1/2 86 1/2
Pacific Insurance Co.	118 1/2 119 1/2
San Francisco Insurance Co.	100 1/2 101 1/2
Merchants' Mutual Marine Insurance Co.	470 1/2 471 1/2
California Insurance Co.	118 1/2 119 1/2
Union Insurance Co.	88 1/2 89 1/2
California Home Insurance Co.	100 1/2 101 1/2
Home Mutual Insurance Co.	194 1/2 195 1/2
Decorative Life Insurance Co.	74 1/2 75 1/2
National Insurance Co.	74 1/2 75 1/2

MINING STOCKS—WASHOE DISTRICT.	
Alpha.	69 1/2 70 1/2
Baltimore American.	2 1/2 2 3/4
Selecher.	30 1/2 31 1/2
Bullion, G. H.	107 1/2 108 1/2
Crown Point.	117 1/2 118 1/2
Confidence.	50 1/2 51 1/2
Chollar-Potosi.	28 1/2 29 1/2
Dancy.	6 1/2 6 3/4
Excelsior.	42 1/2 43 1/2
Empire Mill and Mining Co.	22 1/2 23 1/2
Gold & Curry.	107 1/2 108 1/2
Gold Hill Quartz.	100 1/2 101 1/2
Hale & Norcross.	114 1/2 115 1/2
Imperial.	195 1/2 196 1/2
Keck.	40 1/2 41 1/2
Lady Bryan.	32 1/2 33 1/2
Ophir.	13 1/2 14 1/2
Overman.	159 1/2 160 1/2
Savage.	26 1/2 27 1/2
Sierra Nevada.	121 1/2 122 1/2
Yellow Jacket.	10 1/2 11 1/2
Golden Rule, California.	10 1/2 11 1/2

San Francisco Market Rates.

Wholesale Prices.

FRIDAY, JUNE 5, 1868.	
Flour, Extra, 48 lbs.	\$6 25
Do, Superfine, 48 lbs.	5 50
Do, 36 lbs.	5 00
Wheat, 100 lbs.	2 50
Oats, 100 lbs.	2 25
Barley, 100 lbs.	1 85
Seeds, 100 lbs.	5 50
Potatoes, 100 lbs.	75
Hay, 100 lbs.	12 00
Live Oak Wood, 100 lbs.	9 00
Seal, extra, dressed, 100 lbs.	10 00
Sheep, on foot, 100 lbs.	3 00
Hogs, on foot, 100 lbs.	7 1/2
Hogs, dressed, 100 lbs.	7 1/2

GROCERIES, ETC.

Sugar, crushed, 100 lbs.	14 1/2
Do, China.	10 1/2

Coffee, Costa Rica, 100 lb.	16	00	10
Do, Rio,	17	85	00
Tea, Japan, 100 lb.	63	00	00
Do Green,	60	00	19
Hawaiian Rice, 100 lb.	9	00	00
Oliva Rice, 100 lb.	9	00	00
Coal Oil, 100 Gallon	31	3/4	00
Candles, 100 lb.	12	00	00
Clarified Butter, 100 lb.	30	00	30
Richmond Butter, 100 lb.	30	00	30
Butter, California, 100 lb.	17	00	00
Eggs, per dozen	13	00	00
Ham and Bacon	14	00	15
Shoulders, 100 lb.	9	00	10

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, May 30th: The old Whitesides Mill has passed into the hands of the Pittsburg Company. Mr. Thompson, the superintendent, has offered the I X L Company to work their ores at \$12 per ton, with the calculation that this, with the ore the Pittsburg's own mine will now furnish, will keep the mill running.

On Monday the mine of the Buckeye No. 2 Company was sold at Sheriff's sale to D. C. Riddell for something over \$2,000.

M. C. M. Co.—Nearly 50 feet of drift has been made on the ledge this month. The ore looks very well.

Amador County.

Dispatch, May 30th: The Casco mine situated in Hunt's Gulch, has been purchased by Messrs. Haley & Co. for \$6,000. The shaft is 10 ft. by four in the clear, is now down 265 ft., and is still being sunk at the rate of two ft. per day.

The lower south level in the Coney-Biglow mine is now in 40 ft. and the vein is 12 ft. wide. The upper north level is over 140 ft., with a vein 20 ft. wide. The rock in these levels, we learn, is richer than any that has been found in the mine heretofore.

Calaveras County.

Chronicle, May 30th: Mr. Said, manager of the "Petticoat" mine at Railroad Flat, has leased the mill of Hephurn & Co. for one year. Work is being pushed rapidly forward, with flattering prospects.

The Centre House mine, near the Junction, Chili Gulch, has been prospected so far as to warrant its owners in putting upon it a mill. The work in the shaft is continued night and day.

Inyo County.

Territorial Enterprise, May 27th: We were yesterday shown a large lot of very fine specimens of silver ore from a number of different leads in Cerro Gordo District by Dr. James Delevan, who spent the past winter in that region. The ores contain a considerable amount of copper and lead, with much silver. As yet the furnaces in use are very small and rude affairs, but some large and well-constructed furnaces will soon be in operation. The leads yield paying ore from the top, and there is no prospecting after supposed rich deposits. Dr. Delevan will return in a few days to the mines, taking with him tools and supplies for the mines in which he is interested—the Cerro Gordo, Mexican, and others. The majority of the miners now in the district are Mexicans.

Kern County.

Havilah Courier, May 23d: We saw a few evenings since a gold brick, value, \$465.51, which was made out of rock from the Rip Van Winkle lode, Keyesville District, owned by Fritz & Bernard.

The New York and Clear Creek Mining Co. are about to resume work on the Cape Horn claim.

Letter from Kernville: The claims of Ellsworth & De Land and Hutton & Co., are yielding very rich ore. Ellsworth & Co.'s mill is running again. Their shaft is down about 300 ft., and prospects well. Mr. Odors, about a mile above the old mill, has some very rich lodes, which he has begun to work in earnest. He made a run with his arastras last week, which yielded over \$100 to the ton. The old placer mines near Keyesville, are being worked to a considerable extent, and are paying well. Fritz Bros. & Co. are working a quartz lode near Keyesville which is from two to three ft. wide, and pays from \$50 to \$80 to the ton. The rock is crushed on Dick Scott's arastras.

Los Angeles County.

Star, May 16th: Soledad, once the scene of active operations in copper, is again attracting attention in silver and gold mining. Messrs. Searles & Yates are constructing arastras; these are miners of great experience, and they have the most sanguine hopes in their ultimate success. Polk & Kabler are now running the mills of Mr. McMurtry, and are realizing handsome returns. Scott & Edgerton have four horse arastras running, with every prospect of success.

Nevada County.

Transcript, May 28th: The Buckeye Co., at Sweetland, owned by Evans, Stiger, & Co. is paying big dividends to its owners. The American Co. at Sebastopol, are taking out an immense amount of gold. The claims are paying \$75 per day to one-eighth interest. All the claims along the ridge are paying splendidly. The Wyoming, Ohio, and Golden Gate companies, at

North San Juan are taking out lots of gold. The Eureka Co. has started up again after lying idle about two years, and the prospect is very good. It is estimated that over \$1,000,000 has been taken out of these claims and the largest clean up was about \$10,000. The mine was or is owned by San Franciscans, and they stopped work on it two years ago because it did not pay well. There were two gold bricks at Furth's hanking house, North San Juan, on Tuesday last, worth about \$20,000, which came from the diggings in the neighborhood. Business is better along the ridges than it has been in two years.

Same of 31st: From a gentleman who came from Red Dog yesterday we learn that a lump of quartz and gold was found in the diggings of Clipstine & Co., at Remington Hill, on Thursday last, which weighed 240 lbs. Our informant says it is estimated that it will yield not less than \$20,000.

A lot of mining ground, consisting of ff y c'aims of 40 by 250 feet each, was sold a few days ago by Martin Janch to John B. Hunter for the sum of \$17,500.

Same of June 30th: Considerable mining is now being done in the vicinity of Washington, and the miners are doing first rate.

Gazette, 29th: The Cold Spring and Fountain Head companies, on the Washington ridge, three or four miles above Nevada, are making arrangements to commence working. The companies have joined together and surveyed a ditch, connecting with the South Yuba Canal, near the Central House, and extending down to the Cold Spring claims. The ditch will be about five miles in length. Men are already at work digging the ditch.

Jacobs & Sargent cleaned up \$1,675 yesterday, after a twelve days run, in their Railroad claims at Quaker Hill.

Same of June 3d: We were informed in Grass Valley, on Tuesday, that the old Rocky Bar mine (in which the brothers Watt laid the foundations of their fortunes,) will be started up next week under the superintendence of A. B. Brady. Also, that there is every prospect of work being speedily resumed in the Allison Ranch mine.

Grass Valley Union, May 28th: The Red Jacket mine is located on the north side of Deer Creek, about one mile below the Anthony House. About 18 months ago W. M. Pearl and others, residents of Timbuctoo and Smartsville, took it into their heads that the site of the Red Jacket mine had deep down under it the celebrated Smartsville lead of blue gravel. A company was organized and work at once commenced. A letter from Judge Pearl, dated at the mine, on the 24th inst., says: "The problem as to whether the Red Jacket Mining Co. is worth anything or not, is solved. We have found a large deposit of 'blue cement,' equal in richness, to all appearance, to the cement claims of Smartsville."

The owners of what was lately known as the Lucky Mine, were incorporated on Wednesday last, under the name of the Howard Hill Mining Co.

The Idaho Co. a few days since struck the ledge in the shaft, at 40 feet below the 300 foot level. This strike shows pretty conclusively that the Idaho Co. are on the east extension of the Eureka ledge. The quartz resembles that of the Eureka mine in every particular.

Grass Valley National, May 29th: In the Doomsday mine since 9 o'clock Tuesday morning, the water has been reduced in the incline 160 feet, including the vast quantity in the first level. Some few timberers have given away, but generally speaking the mine has suffered but little by being filled with water a month or two. Work will be resumed in the first level on Monday.

Same of June 1st: We visited the North Star mine on Saturday. The company are taking out from 40 to 80 tons of rock per day. In the sixth level, east, the ledge has been drifted upon for about 300 feet, and is from two to three feet thick. We have seen ore before, but nothing to compare in beauty and richness, both in gold and sulphurets, to that we saw in this level. In this and the other levels there is all of ten years work in sight. Chlorination works are in contemplation. The mine has yielded about \$10,000 in rich specimen rock within ten days past.

EXCELSIOR.—Nevada Transcript, of May 29th: By a letter we received from Carlisle we learn that matters are beginning to look up in that region. The Kentucky claims, located on the Ohio ledge, Old Man Mountain, adjoining the Grant mine, and for the past eight months under the Superintendence of Mr. Wood, has a tunnel 218 feet, and in addition they have run a cut 80 feet, tapping the ledge, which shows itself well defined, and though cut a distance of eight feet, not yet through. The mine is opened

by the tunnel 150 feet. The shaft which is to intersect this tunnel was sunk 40 feet last fall, and it will now be pushed forward. The annual meeting of the stockholders will soon be held, when they will decide whether to build machinery and a mill this season. The Kentucky Co. have expended some \$12,000.

Placer County.

Dutch Flat Enquirer, May 3d: We have this week heard several parties inquiring for miners to work their hydraulic claims, but we are informed that they are not to be had in this vicinity.

Nevada Gazette, May 2d: The quartz mill of the Rising Sun Company, near Colfax, has been completed, and was started in operation a week ago Monday. A friend at Colfax informs us that after a run of four and a half days, they cleaned up the amalgamator and obtained \$905. This was in addition to what may have been saved in the battery, which has not yet been cleaned up. A crushing of rock from the Rising Sun mine, at the Gold Hill mill in Grass Valley, gave a favorable return, and the mine is managed and partly owned by experienced Grass Valley miners.

Plumas County.

Quincy National, May 30th: The Crescent mill is only running sixteen stamps at present. The mine is full of water, and the mill is running on rock taken from the upper level. The Whitney mill and mine is utterly deserted—no one at work there.

San Bernardino County.

Guardian, May 30th: For more than one year past the great quartz lodes of Holcomb Valley have been effectually stopped by litigation, and from present appearances it will be some time before they settle their difficulties and resume operations. On the Green Lode work has also been suspended. The placer mines, however, of Holcomb Valley, are being worked by about forty men. A steam pump is employed by Mr. Charles Farciot, and all are making fair compensating wages, with a prospect of doing better as the high waters subside. Recent advices from Lytle Creek show that new placers have been discovered, that are paying from fifty to eighty dollars per day to the four men engaged in working them; also in Swartout's Pass new placers are being worked at paying rates by Sonoranians.

Sierra County.

Downieville Messenger, May 30th: A. M. Sackett has bought 100 tons of quartz from the claim of Johnson & Gardner [extension of the Docile] at Alleghany, and is now mining it out with a view to crushing it in the Docile mill. It is reported that the rock already taken out is very rich.

After years of labor, the Gold Bluff boys have at last got on the track of their ledge in the lower level, and will probably reach pay in a comparatively short time.

It is rumored that rich rock has been struck in a lower tunnel being run at the Docile.

J. and R. Hainer have taken a contract to run 250 ft. of tunnel in the Good Hope claim for \$1,250—\$5 per ft.

La Porte letter says: Mining has commenced and is steadily progressing in all of the best hydraulic claims in this vicinity, and it promises well for a mining season.

Siskiyou County.

Yreka Union, May 30th: On Humbug the miners generally have their claims open and are getting good pay. At Mugginsville the miners are doing a great deal of work with good prospects. Moore & Grooms have washed a small piece of ground and received good pay. At Etna the work in opening the claims through the flats is progressing satisfactorily, and good prospects are obtained. Work has been resumed on the "Steamboat" claim on McAdam's Creek. This summer water power, instead of steam, will be used for running the pumps and hoisting the dirt.

Tulame County.

Sonora Democrat, May 30th: A gentleman from Jamestown informs us that marvelously rich rock is being taken out of the Croesus mine, and that the further it is opened the better it looks. The machinery for a ten stamp mill is already on the ground. In putting it up things will be arranged for an addition of ten more stamps.

ARIZONA.

Prescott Miner, May 16th: Last week Little & Taylor of Lower Lynx creek, after five days' run, with three hands, cleaned up their sluice boxes, and got \$150. Miller & Co.,—three men—took out of the England gulch, last week, \$150. Two Mexicans, who came here recently from Weaver, took out of this gulch in one half day over half an ounce. They washed the dirt in a rocker. George Niox has a sluice claim on Upper Lynx creek which pays him about \$5 a day. The placer miners on the Has-

sayampa are making fair wages. The Aztan mill is running upon Chase rock. McWilliams & Smith have been flooded out of their claim in the vicinity of the Tanks. They will resume operations so soon as the water decreases. We learn that it is the intention of some of our miners to pay a visit to Black Cañon soon, and prospect with a view to working it with hydraulic process. On Big Bug all the companies now at work, some four or five, are making from \$4 to \$12 a day. Considerable gold is being taken out of the placers at Weaver Hill, and in the vicinity of the Vulture mine. D. R. Poland came down from Walker's District yesterday. The arastras were running. In Turkey Creek District the shaft on the Gross lode was down 10 ft., and prospects were good. Indians were plenty, and work, fear, will have to be suspended. In Wickenburg District, both mills are now at work. The new silver ledge recently discovered northeast of Wickenburg is being prospected. The vein is narrow, but the lode is well defined, and can be traced for miles. R. W. Groom has found another rich silver ledge 15 miles below Wickenburg. He will sink a shaft upon it. The Wickenburg and La Paz people are greatly excited over the new mine recently discovered near Black Tanks. The ledge has been located for miles, and is being worked by several companies. It is said to be richer and larger than the Vulture. Henry Wickenburg and W. P. Smith are hauling rock to their mill at Wickenburg, to crush and test it. In Big Bug District, Mr. Gray will soon start his mill.

COLORADO.

Herald, May 13th: The Ophir Co.'s mill started up yesterday. B. C. Waterman has the Philadelphia mill all ready to run on custom ore. Charley Aldrich has 14 of the Kenyon G. M. Co.'s Bertola pans running on blanket tailings. He has purchased of Mr. Fitzpatrick the "clean up," in and around his 8-stamp mill. The miners on North Clear Creek, below Black Hawk, as a general thing are making money. J. D. Nash is running the Sensitive mill on custom ore. Mat. France gave us a couple of specimens of ore from the "Brown" yesterday, which are perfectly splendid. The ore, upon close inspection, is found to be full of ruby and brittle silver. The Herkimer lode is opening out splendidly. The mine now shows 15 inches of rich ore besides a good show of second quality. Mr. E. C. Beach has been managing the Briggs' mining property. Today he deposited a solid chunk of gold weighing 53 lbs. 10 oz. 10 pwt., troy, the result of his labor for the month of April. The value is \$15,000 in currency. The cost of the reduction was \$7,000.

Register, May 14th: Mining matters are materially improving. Yesterday Warren Hussey & Co yesterday shipped 260 ozs., as the result of their small purchases during the week. Placer mines long idle are now being worked with profit.

Georgetown Miner, May 14th: From the shaft of the Equator, about 100 feet deep, there was taken out one day last week, 1,200 pounds of ore, scarcely a specimen of which does not carry "wire" native silver in abundance. At the bottom of the shaft, there is 12 inches of this native silver-bearing ore. In the Winnebago lode, a few hundred feet north, the same kind of ore in considerable quantity has been discovered. In the Herkimer lode, a new pocket of splendid looking ore was opened last week. The Sonora lode is now in splendid condition. It has been opened by two adits, one about 50 ft. above the other. A shaft has been sunk connecting them.

On Thursday last the largest ingot of silver hullion ever produced in this Territory was taken off at the Georgetown smelting works. It weighed 260 lbs., troy, or 3,120 troy ounces, coin value \$4,242.20, currency value \$5,516.16. This product was from nine tons of first class ore and two tons of low grade galena ore, which gave, by average assay, less than \$50 in silver to the ton. Notwithstanding the low yield of this two tones, the average yield on the 11 tons is \$382.75 in silver, coin value, to the ton of ore. This amount of silver was taken out in five days' run.

DACOTAH.

Colorado Register, May 14th: H. Tadder, a good prospector and reliable man, writes from Atlantic City, April 5th: I have prospected the rock from the Atlantic ledge thoroughly; if it was in Colorado it would not pay for crushing. The Miner's Delight has a two foot crevice and shows free gold. The deepest shaft is 10 ft. I think the ore will pay about \$500 per cord. The Creaser will probably pay expenses. The Lone Star State prospects about \$60 per cord, has a two foot crevice, and a shaft about 20 feet deep. This includes all the important

ledges in this country. Rock Creek has about 600 inches of water, and has been slightly prospected. We get from half a cent up to ten cents to the pan. About 400 claims have been taken. Only one claim is opened. The owners have three joints of sluice; they make about \$5 per day. After looking over this country for ten days, I must say that I am very much disappointed in the prospects.

On the 18th he writes: Hundreds are now arriving from Montana and the western mines. They seem very much dissatisfied, and quite a number are leaving here for Colorado.

IDAHO.

Owyhee *Avalanche*, May 23d: The Golden Chariot Co. was robbed of about \$6,000 in crude bullion on the night of the 20th at their mill on Sinker Creek. It was taken from the retort.

Letter from Flint District: The Rising Star Ledge is 20 feet wide in the upper level, the whole width, with the exception of a small horse in the middle, containing good millage ore, and much of it immensely rich. There are about six tons of "first class" that will work over \$800 per ton, and about 90 tons assaying at least \$175 per ton.

Lewiston *Journal*, May 9th: During the last week there has quite a large number of persons left here for Warren's, Elk City and Pierce City. Every one feels confident that the quartz interest of Warren's and other camps is to be developed this season.

Idaho *World*, May 20th: As the season advances the show for a prosperous mining year is better and better assured. Water is becoming more plentiful, and the late rains have added much to the volumes furnished by the ditches. The creeks are as full as in former years, and all about the Basin the miners are generally very profitably employed.

World, May 23d: The late rains have furnished water to many, and we learn that on the high mountain tops the fall of snow within the past fortnight has been so plentiful as to assure a good supply of water in some of the ditches until late in the ensuing fall. The prospects are that this will prove about as lengthy and profitable a mining year as any which has gone before it in Idaho. Nearly all the claims are being busily worked.

Letter to same from Deadwood: Nearly all the locators here are doing better than they expected. Judgo Gray's Co. are doing very well. The Dutch claim has paid at the rate of \$25 a day to the hand for the last three weeks, and promises to keep up this lick for the season. Mr. Reed is making good wages in the same gulch. Comromise Gulch has prospected rich wherever tried, but there is no water in it yet. Two men took out \$70 one day last week there, with one rocker. Hyland's diggings on Horso Fly Flat, are good. He has not yet made a clean up. Jackson offered one of the shareholders \$1,000 cash for one-fifth of 1,500 feet, and the man lunched at him. Wright & Co. have three claims in Keystone Gulch, from which they are taking out lots of dust. Water is cheap, everything considered—65 cents for day and night. Emery Gulch is good. Three companies are at work in it, and are all doing well. Elwood Gulch also pays. Madden & McIntosh have not cleaned up yet. Boulder Gulch, I hear, pays well. Bill Houton is making plenty of money out of his hill ground, and I hear his partner has refused \$1,000 for one-third of three claims. Bill Hupper has found a quartz vein which crops out exceedingly well, and a lot of the rock, which he treated by a simple rough process last Saturday, yielded 62 ounces to the ton. It is situated in or crosses Keystone Gulch, near the head.

MONTANA.

Helena *Post*, May 16th: Gulch diggings have recently been struck on a tributary of Lump Gulch.

A clean up of \$3,600 was made on Sunday from a four days' run upon Cable Rock in the Nowlan & Plaisted mill at Cable.

Prospects in Bannack for the summer are flattering. Roe & Co's ditch has been opened, and hydraulicing commenced. The quartz mills are being put in order, except Col. Wood's, which is sending forth a 15 pound brick every week.

On Taylor, Thompson & Co's claim, Last Chance Gulch, a 10-horse-power engine hauls two cars on separate tracks, 135 ft. long, up a grade of 33 ft. to 100. The average hourly number of car loads of 1,500 each, is 32. Twenty hands are employed.

At the Crow Creek mines the big ditch is now complete, and work has commenced in earnest, with satisfactory results. Radersburg is the liveliest mining center of its size in the Territory.

The small gulches in the vicinity of Bear are paying remarkably well where water can be obtained. At the head of Deep Gulch,

six miles distant from Bear, eight to ten claims are yielding enormously during the few hours that they are worked each day, the runs ranging from \$7 to \$75 per hour, with from four to five men shoveling in. It is, however, impossible to obtain water for more than three or four hours per day.

On Lincoln Gulch there are 108 claims located, 17 of which are yielding large quantities of the precious metal. The ground prospects from 15 to 40 cents to the pan. A clean-up of \$1,100 was recently made from a 10 hours' run on claim No. 5, four men being engaged in shoveling. There are 500 men in the camp.

Letter from Philipsburg: The St. Louis & Montana Mining Co. have been running a tunnel for the purpose of striking the Hope lead at a depth of 175 feet. This tunnel takes its start at the bottom of a shaft over 100 feet in depth, and is already nearly 200 feet in length.

Work on the Comanche lode is progressing finely at four different points. The Mountain Queen, Apache, and Freeman lodes are being developed with satisfactory results. Upon the latter there is a shaft, 100 ft. in depth, showing a well-defined ledge. Bell & Kidder have a tunnel 100 ft. in length on the Pride of the Mountain.

Mr. Philip Deidsheimer is daily expected here with a mill from California or Nevada, and still other mills are expected from the East by some of the first boats coming up the river.

Virginia items: Messrs. Hall & Spaulding have resumed work on their quartz mill, upon Meadow Creek. The machinery is to be a 10 stamp California mill. It left Sioux City April 20th for this place via the river.

From Highland we learn that the Nevins boys have resumed work with their astras.

Mr. Plattner's astras, on Brown's Gulch, has started up with rock from the Black Lode.

NEVADA.

Pahranaagat.

The Stockton *Independent* of May 30th, has a letter from Salt Marsh, from which we quote: The mines never looked more prosperous than at present in the Hot Creek district. Since the Domition mill was burned, several claims have struck the finest quality of ore, and in sufficient quantities to justify the erection of a first-class custom mill. Rattlesnake Cañon, six miles south of Hot Creek, is attracting the attention of capitalists, and there can be but little doubt that the miners will have facilities for working their rich ores before the close of the summer.

Moray, 15 miles north of Hot Creek, has some very rich mines. Those that have been brought into notice by their rich yield of silver, belong to Messrs. Hall & Co. Their ore paid the best average of any rock that was worked at the Old Dominion mill—a large portion running over \$250 to the ton. I have not seen a locality in the State where the facilities for working the mines were so convenient—wood, water and ore all in and on the same mill, and only 35 miles from the greatest abundance of salt. The claims that have been worked by this company have paid well from the top. I saw the most beautiful specimens of ruby ore, taken from a depth of only 70 ft. from the surface. The ledges average from one to three ft. in width. It is expected a mill will be erected at Moray during the summer.

Pahranaagat district has awakened from the causes which had almost depopulated the district. A fine 10-stamp mill has been built at Hiko, 12 miles from the mines, and is running to the satisfaction of all parties interested. The bullion the mill is turning out is of a fine grade, running as high as \$89. The last ore worked averaged \$150 to the ton. At Crescent City a 10-stamp mill is now in process of erection. The list lode is yielding eight to ten tons of milling ore per day. A company at Logan is erecting a smelting furnace for the purpose of working the Galeua ore, of which there is the greatest abundance in that vicinity.

Humboldt.

Register, May 30th: The vein of the Arizona Consolidated Silver Mining Co. is three feet wide at the end of the drift, and the ore is worth \$200 per ton. The company is now sinking a shaft, through which to hoist the ore.

Mr. Guaca has secured Holt's mill, at Winnemucca, and intends to run it this summer on ore from the Winnemucca mines, some two or three miles north of the town.

The De Soto mine is said to look better than ever. The Almira ditto, with plenty of ore in sight; still the Eastern owners are doing nothing.

Messrs. Godshalk and Shupe, from Bucks County, Penn., who have been examining our mines, while rambling over our mountains discovered a very fine vein of quartz, only half a mile above town.

Gov. Fall is now doing a rushing business on the Arizona mill, his new mill, having employed every available carpenter in the county. It will soon be completed and in running order.

Reese River.

Silver Bend *Reporter*, May 23d: For several weeks past the Combination mill has been undergoing salutary changes. The entire battery of 40 stamps now runs with a greatly increased speed; all of the 32 amalgamating pans, and the 16 large settlers are steadily performing their work; the reverberatory furnaces are in splendid trim and no poisonous fumes now stifle the breath of the operatives. Three or four teams are constantly delivering ore, 30 to 35 tons of which is manipulated daily. It is estimated that the bullion product of this mill for the next twenty days will exceed \$50,000.

We now have three quartz mills clattering away upon the rich ores of the district—the Combination with its 40 stamps; the Belmont with 10 stamps; and the Borques mill with its three stamps—53 in all. A furnace for chloridizing is to be built in connection with the latter.

The continued rain has retarded operations upon the Silver Queen ledge. An assay of a selected piece of ore gave \$481.74 silver to the ton.

The richness of the extensive deposit of chlorido ore in the vein of Leon & Co's El Dorado South was not known until recently. Several tons sent to Austin yielded about \$500 per ton. Hereafter it will be worked here and will not be so closely sorted, but will probably work near \$300 per ton. The main incline sunk by the company shows that it is continuous to the lower depths of the works—over 100 ft. The extent of this immense bonanza upon the surface indicates that it is probably the most remarkable deposit of ore of equal quality ever disclosed in any mine of the State. It is easily mined and there are hundreds of tons in sight.

Hot Creek correspondence of same: The Wyoming ledge, at Rattlesnake Cañon, is still improving. At the depth of 30 ft. from the surface, the shaft is seven ft. in diameter and is entirely in pay ore. How much wider the ledge is cannot now be told, but the owners have started a drift from the present depth and intend to cut through to the south wall. At the bottom of the shaft the ore is discernably richer than at any point above—being literally a mass of black sulphuret, tied and held together with threads of native silver.

Reville, 29th: Mr. A. Pumpelly, who returned from Silver Peak a few days ago, informed us that the mill of the Silver Peak and Red Mountain Co. would not be opened before the first of July. The tramway, eight miles long, over which the ore is to be delivered from the mine to the mill was designed by Mr. J. E. Clayton, the mining engineer of the company, and is said to be very ingenious in its construction. The mill contains 20 ordinary stamps, and two novel steam stamps, which are estimated to possess a crushing force equal to 10 ordinary stamps.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial *Enterprise*, May 26th: Work has been resumed in the drifts of the Imperial-Empire shaft, the water having been reduced below the tracks in the drifts. The air-pump, used for forcing fresh air down the shaft and into the ends of the drifts, works exceedingly well. One tank, hoisting 600 gallons at each lift, is sufficient to keep the water down.

Same of 28th: The silver-lead ores of Galena District are at last to be worked at a profit. Smelting is necessary. Mr. McFarland is now extracting \$250 per ton in gold and silver—chiefly the latter—with the furnace which he has lately erected west of Washoe City.

We were yesterday shown a bag of bullion from the Malta mine, Argentine District, Washoe County, weighing 134.65 ounces, .971 fine in silver, and .022 fine in gold. The bar contains \$169.03 in silver, and \$61.23 in gold—total \$230.26—and was extracted from six tons of ore, showing a yield per ton of a fraction over \$38.39.

29th: The rich streak in the Cole mine has now widened out to two ft. in thickness, and is only stripped for a distance of ten or 12 ft. This whole deposit is exceedingly rich in gold and silver. Our party dug out several pounds of the ore, and on taking it outside of the mine and washing it off, gold was to be seen in nearly every piece. An assay of ore taken out of the center of this streak, yielded at the rate of \$2,508 per ton in gold and silver; another from a different part of the streak yielded \$1,600, and others well up in the

hundreds. The average of nine assays of ore taken out at random for a distance of 40 ft. along the lead, and outside of as well as within the newly discovered deposit, was \$461 per ton.

The Gould & Curry Co. are vigorously engaged in sinking the Bonner Shaft. The shaft will be put down until through the west wall of the lead before drifting is commenced.

The Crown Point Co. have commenced sinking their main shaft for the purpose of opening a new and deeper level.

Trespass, May 30th: In the Crown Point, work in the shaft continues; down 31 feet. The middle body of ore has improved most materially. South, 800-foot station, a magnificent body of ore has been developed. In Chollar-Potosi, about 800 tons of ore have been extracted during the week, nearly all of which has been taken from the old chambers of the Blue Wing station. The timbers for the 1,100 foot station are being put in position. At a depth of 1,200 ft. a drift will be commenced. The new machinery at the Justice is nearly completed. About 1,450 tons of ore has been taken from the Savago this week.

The following is a statement of the amount of bullion shipped or received for assay during the past week: By Wells, Fargo & Co., in this city, there were shipped 5,393 pounds of assayed bullion, valued at \$140,815.35. Gold Hill, 4,530 pounds, valued at \$124,319.68.

Yesterday a body of ore 10 inches wide, which will assay from \$35 to \$50, was cut in the Suro claim, about a mile from the city.

NEW MEXICO.

Santa Fe *Gazette*, May 9th: The result of 16 days' run of the mill at these mines has been between \$2,300 and \$2,500.

C. E. Cooley, Esq., of Tuerto or New Placeres mines, was in the city on Monday. He had with him specimens of gold. The only machinery in use, as yet, is the astras. We are assured that the tests which have been made are satisfactory. There is on this claim a smelting furnace for reducing copper. It is said to operate well.

Gulch mining is now being carried on quite extensively on the Tuerto grant. Several experienced miners from Arizona are making good wages, notwithstanding the scarcity of water.

Capt. Hubbell informs us that several claims have been taken up on the Magdalena Mountains, a few miles west of the town of Socorro. The ores are of gold, silver, and copper.

In consequence of the snow, work has not yet been begun at the Moreno Mines, but there is a large number of men waiting for the opening of the season.

OREGON.

Enterprise, 16th May: The copper recently found in Clackamas County by F. M. Shaver is turning out a magnificent affair. The locality is close by the Willamette, and just above it is a valuable bed of iron ore, equal to Oswego and quite as extensive.

Dallas *Mountaineer*, 23d: By the arrival of Mr. Edgar on Thursday, we learn that the people of John Day Valley and Canyon City are prospering. The mines are turning out their average amount of gold dust.

Jacksonville *Sentinel*, 23d: We were at the Occidental mill this week, and found everybody busy. Col. Drew has been running night and day for 13 days. The quartz, being crushed now is from Timber Gulch lead, and has the appearance of being very rich. The last run paid \$10 to the ton. The mill is in splendid running order.

A vein of decomposed quartz running across Kanaka Flat has been struck. From present indications the lead will pay fully as well as the Timber Gulch lead. The vein of quartz is between three and four ft.

At Sterling the claims are still panning out well. We hear of a number of claims paying an ounce a day to the hand.

We learn that new diggings have been struck between Rogue River and Galice Creek, that prospect well.

A THOUSAND MILES OF ROLLING STOCK.

The railway rolling stock of Great Britain, if ransed in line, would be headed by about 50 miles of locomotives and tenders, about 100 miles of carriages, and 850 miles of freight, gravel, cattle and miscellaneous cars. On the British railroads last year, the amount expended upon locomotive power was 27.93 per cent. of the working expenditure. For maintenance of way and works the expense was 18.43 per cent. of the working expenditure; for repairs on cars, 8.18 per cent. The total expenditure under all heads was 49 per cent.

INCREASE OF CAPITAL STOCK.—The Empire Mining Co. has increased its capital stock from \$100,000 to \$500,000.

Mining and Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

O. W. M. SMITH. W. B. EWER. A. T. DEWEY.
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Warnings should be cautious about addressing correspond-
ence relating to the business or interests of a firm to an in-
dividual member thereof, whose absence at the time might
cause delay.

Canvassing Agents.

Mr. A. C. Knox, is our city soliciting and collecting
Agent, and all subscriptions, or other favors extended to
him, will be duly acknowledged at this office. Jan. 11, 1866
Mr. C. T. Kane, is our duly authorized agent for
Sacramento County. Nov. 22, 1867.

Dr. L. G. Yates is our duly authorized traveling
agent. July 6, 1867.
Mr. A. B. Butler is a duly authorized traveling
agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, June 6, 1868.

Notices to Correspondents.

METRON.—The principles on which the French and English systems of weights and measures are based, vary very greatly. The more simple method adopted by France, has for its standard of reference the measurement of one of the great circles encompassing the earth. The ten-millionth part of a quadrant of the meridian, constitutes the unit of this system. This quadrantal arc was fixed at 6,213 miles, 1,450 yards, English measure; consequently the ten-millionth part thereof, constituting the meter or standard, is equivalent to 39.37079 English inches, being nearly $3\frac{1}{2}$ inches longer than the English standard yard, and a fraction of an inch longer than the seconds pendulum to be immediately noticed. In England, the standard of length is the yard measure, which is sub-divided into 36 inches. This is based on data obtained experimentally by Captain Kater, that the length of a second pendulum whose oscillations are obtained by the action of gravity alone, at the level of the sea *in vacuo*, at the latitude of Greenwich, is 39.13929 inches. The decimal division of the standard yard has never been adopted by the English generally, but her chemists now very generally adopt the French decimal system of weights, from its great convenience in expediting their calculations. For the ordinary transactions of common life, as respects both coins and weights, much can be said for the convenience arising from their capability of being halved without passing so readily into fractions, when they are divided, in comparison with the decimal mode. The latter mode was adopted at an early period for sub-dividing coins in India.

A RESIDENT OF THE SOUTH.—The area occupied in France in the cultivation of the vine, amounts to about five millions of acres,—a very large part of which is unsuitable for ordinary tillage, consisting of rocky hillsides. The deficiency occasioned in the supply of brandy, owing to the ravages of the "oidium," has, to a considerable extent, been made up from the refuse remaining after manufacturing sugar from the beet-root. The extent of land under cultivation for this root in France, is said to amount to 125,000 acres.

GENEALOGIST.—The name Mordaunt is a corruption of the French word *mordant*, biting, indicating that the party to whom the name was originally applied, was habituated to the brutal habits associated with "rough and tumble" modes of fighting. The Premier Earl of the English and Irish Peerage, is named Talbot, the founder of the family obtaining that name, owing to his possessing the qualities of a bloodhound. So much for aristocratic names.

ONE UNEDUCATED may accept as correct, the statement made to him, that the total pressure on the surface of a man of average size, amounts to between fourteen and fifteen tons, spread over the entire body. To our sensations this is not felt, because, an equally great pressure exists internally as well as externally. The ordinary pump is based upon the same principle, viz., that the pressure of the atmosphere, on the average, amounts to fifteen pounds on every square inch of surface.

POMOLOGIST.—The term Beurré, applied to a very numerous species of pear, signifies the Burrel or Butter Pear, so termed on account of its rich soluble qualities when ripe.

Commencement at Oakland.

The Annual Commencement of the College of California took place at Oakland on Wednesday last. The day was most beautiful, and the attendance of the *litterati* from this city and other portions of the State was large. Vice President, S. H. Willey, presided at the exercises. The following named young gentlemen delivered their graduating orations, which were characterized by unusual ability:

Salutatory, in Latin, by Richard Eugene Poston, Marysville.

Oration, "Empiricism," by Charles Allen Dudley, Mokelumne Hill.

Oration, "Our Mothers," by Richard Eugene Poston, Marysville.

Oration and Valedictory Address, "Truth and its Application," by Charles Augustus Wetmore, Oakland.

The graduating class consisted of five, whose respective standing and honors was as follows, five being the highest mark for class distinction: John Lyman Beard, 4.381, second honor; Clinton Day, 4.269, second honor; Charles Allen Dudley, 4.554, first honor; Richard Eugene Poston, 4.655, first honor; Charles Augustus Wetmore, 4.755, first honor.

The Commencement exercises were of more than average excellence, and gave evidence of unusual promise for the young gentlemen who took a part therein. The Oration by Mr. Benton was worthy of the man and the occasion, and was listened to with marked attention.

The fifth annual meeting of the Associated Alumni of California, was held in the afternoon, and was followed with the usual interesting and unique social entertainment in the evening. These evening exercises are growing more and more in favor. In no part of the world is there such a general and hearty annual gathering of the community of letters as that which accompanies the Annual Commencement exercises at Oakland. The associated Alumni of California, instead of representing a solitary institution, is made up of graduates from all the principal colleges throughout the Union, and many in distant countries. It meets annually upon a common ground of union for friendly greetings, recognizing in its membership only the fellowship of culture and the guild of letters. After the delivery of the Annual Alumni Oration and Poem, and the formality of business, the members proceeded to one of the College halls, where a collation was served up under the auspices of the ladies, who were freely admitted to fill all the vacant space which could be found.

The festivities of the evening were continued until the shrill whistle of the locomotive announced that the hour of eleven had arrived, and that those who would take the last boat for the city, must be up and moving. All the exercises of the day passed off in a most happy and gratifying manner. It was the last Commencement of the "College of California," as the next academic year will commence under the auspices of a full fledged "University."

CONTRIBUTIONS TO OUR CABINET.—We are indebted to Mr. Ezra Carpenter, President, for a fine specimen of cinnabar ore from the "Silver Bone Mine," in Pope's Valley, Napa county. The rock is somewhat peculiar in character, consisting of a kind of indurated clay—a silicate of alumina. It is beautifully studded with bright crystals of cinnabar.

We also acknowledge the reception of some fine specimens from the lava flow, from the recent volcanic outbreak at Mauna Loa. The specimens were forwarded by Mr. Teuant, of Honolulu, through the hands of Mr. Augustus D. Jenny, of the U. S. steamer Lackawana.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pino.

Foundry Work.

THE GOLDEN STATE IRON WORKS.

We were not a little interested, during a visit the past week, to the Golden State Iron Works, to notice among other things a large number of printing-press castings. On inquiry we learned that the first printing press ever constructed at this foundry, and the first, we presume, on the Pacific Coast, was built last winter for Faulkner & Co., type founders of this city. They are now building three others of the same style and size—a $33\frac{1}{2}$ by $23\frac{1}{2}$ Washington Press, together with an inking machine to accompany each. This is especially interesting as the pioneer enterprise of a new business on this coast, which must eventually become one of much importance.

The same foundry is also building a 10-stamp mill for the Bovee mine, near Angels, Calaveras county. An engine and boiler accompanies this mill. They have just sent off three stamps, with the necessary appurtenances, to be put up at the Mohawk and Montreal Co's mill at Meadow Lake, where the company have five stamps already in operation. An additional boiler accompanies the order. They are also manufacturing one of the new Landrum hall pulverizing drums, such as those in use at the Mariposa Estate.

A heavy set of Cornish Crushing Rolls, with gearing, etc., complete, was shipped from the Golden State Works on Tuesday last, for a mine in Arizona. They also shipped a few days since a Cornish lift pump, with iron hob, for the "Petticoat" mine, at Railroad Flat, Calaveras County. They recently sent up ordinary hoisting machinery for this mine, but that has been found insufficient to keep down the increasing influx of water, hence the present order for a pump. This "iron hob" is quite a novelty in the mode and manner of its construction. Instead of the cumbersome and unwieldy construction usually employed for this apparatus, this establishment has substituted hollow tubing (gas-pipe), thus securing the greatest strength obtainable from the least weight of metal. When we take into consideration the great expense of transportation in this country, the improvement here introduced is an important one. This mine belongs to Mr. G. W. Hopkins, the well known mining superintendent of Virginia City, and is said to be a very valuable and promising piece of property. It is under the immediate management of E. Said, as resident superintendent. We noticed among much other miscellaneous work at this establishment a large number of Roy's improved whale bombs in process of construction. This useful California invention is elsewhere in our columns to-day more fully described.

THE NEW COMMISSIONER.—Mr. Raymond, the new Commissioner for the collection of Mining Statistics on this coast, arrived on Sunday last. The next evening he addressed the California Academy of Sciences. The substance of his remarks will be found in our report of the proceedings of the Academy. The clearness with which he defined his position, and his agreeable style of speaking, made a most favorable impression. He is evidently a "live man." He is moreover by education especially fitted for the office. His acquaintance with the very subjects with which it has to do, made him sought after some two years ago to take the editorship of the *American Journal of Mining*; which position he accepted, and indeed still retains. His affable manner will doubtless disabuse many an honest miner of the notion that "Freiberger" are all conceited and arrogant positivists, who hold in contempt the ideas of "practical men." We predict that he will win golden opinions among us.

ACRES.—A statistician has figured out the arable land in the United States. It amounts to 52,000,000 farms of 160 acres each, or 8,320,000,000 acres.

Mechanics' Institute.

The regular monthly meeting of the Mechanics' Institute was held on Thursday evening, at their hall, on Post street. The report of the President for the quarter ending May 31st, was read. We append the bulk of the report:

The finances of the Association are in a very slightly improved condition.

We owed on the 1st of March, 1868.....\$3,839 54

We owe this date.....2,124 36

In addition to the above, is the debt of \$50,000 secured by mortgages on the building.

The receipts for the past month have been \$3,321.50. Disbursements during the same time \$4,208.28.

MEMBERSHIP AND LIBRARY.

The present membership is 1,156. New works added to library during past quarter, 344. Efforts are being made to increase the number of periodicals for the reading room.

PROPOSED POLYTECHNIC INSTITUTE.

It is desirable that we should bring ourselves in more intimate connection with the mechanical, scientific, inventive and industrial genius of the State, and exert ourselves to place before communities here and abroad the progress made in these various departments, and which is attested by the vigorous building of railroads, development of ocean navigation, and the large number of patented inventions. In this connection I propose to call a meeting of those interested in this particular, for the purpose of organizing a society similar to the Polytechnic Society of the American Institute, believing that by a proper identification with all which relates to the Arts and Sciences, our membership will be largely increased.

THE STATE FAIR.

The time of your officers has been largely absorbed in projecting and furthering the Industrial Fair, to be held this fall, and they have labored under some difficulties from unexpected sources. Before the adjournment of the Legislature, and previous to your last annual election, it was well understood that you were somewhat justified in feeling that you had the assurance of an appropriation of \$10,000 from the State, to be devoted to premiums at the forthcoming Fair. It was reasonably expected that with this as an incentive to inventors and exhibitors, the result of the Fair would go far toward wiping out the heavy debt under which we are now struggling, and which is taking our life's blood. It was with regret and surprise the Directors learned that one of the committee having in charge the matter of the application to the Legislature for an appropriation, and who reported so favorably to your meeting in February last as to obtain the thanks of that meeting, had so far forgotten his relations to this Society, and the members thereof, as to use his official position to prevent this Society obtaining the appropriation, which "there was every reason to believe" had been unanimously agreed to by the Committee of Ways and Means of the Assembly.

The Directors have obtained loans guaranteed by the net receipts of the forthcoming Fairs to the amount of \$20,000, and find everywhere a feeling of hearty good will and tender of pecuniary assistance. Work has been commenced on the Fair building on Union Square, and is being pushed ahead under the immediate personal superintendence of Mr. John Dickson, and in charge of the Building Committee, the same being done by days' work. It is expected that the building will be ready to receive goods by the first day of August, the eighth of that month having been appointed for the opening. There is a general desire to exhibit by the public, and a large percentage of the space has been already engaged. This is encouraging, when we consider that the building will cover an area of 68,000 feet. We have to acknowledge courtesies on the part of the State Agricultural Society, and efforts in our behalf, especially before the Legislature, in the matter of the appropriation, and it is to be hoped that the kindly feeling so happily inaugurated last year may continue to our mutual benefit and to the advantage of the State at large.

We are under deep obligations to our Members of Congress for favors extended, also to the many friends of the Society, who have given us substantial tokens of their good will by constantly forwarding to us various newspapers, magazines and other documents. A. S. HALLIDIE, Pres.

DEEP AND DEEPER.—The artesian well is on the Colt estate at Hartford, has reached a depth of 1,300 feet, and is to be bored 200 feet deeper.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, June 1, 1868.

Vice President Dr. James Blake in the Chair.

The committee appointed to make arrangements for a course of lectures, reported the following arrangements for the delivery of lectures: Lecture to be delivered by Dr. James Blake, on the third Monday in June; by Dr. Henry Gibbons, on the first Monday in July; by Dr. Cooper, on the third Monday in July; by Mr. Falkenau, on the first Monday in August; by Dr. H. N. Bolander, on the third Monday in August; by H. G. Bloomer, on the first Monday in September; by Theodore Bradley, on the third Monday in September.

Milton S. Latham, Frederick Townsend, and Dr. B. D. Deau were elected members of the Academy.

A resolution formally reported from the Council, for reduction of life membership fee to \$100, was adopted as an amendment to the Constitution.

On the recommendation of the Council, a Committee, consisting of Dr. Cole, Dr. Cooper, and Mr. Bradley, was appointed to inquire if rooms for the Academy's use can be had from the city.

H. G. Bloomer was elected Director of the Museum.

Several donations were made to the cabinet, when business was suspended in order to listen to R. W. Raymond, newly appointed Mining Commissioner, who was present.

The President then introduced Mr. Rosaiter W. Raymond, the new Commissioner of Mining Statistics, who arrived on Sunday in the steamer, and was invited to address the Academy. Mr. Raymond returned thanks for the kindness of his reception, and proceeded to give an interesting statement of his plans and views in connection with the discharge of his duty as Commissioner. Alluding to the limited time allowed him for his first report, and to the fact that the political struggles of the day had prevented Congress from making the usual appropriation for the purpose, he explained that his object for the present summer was to observe, study, and listen, and, by personal observation, to acquaint himself with the condition, prospects, and requirements of the mining interest. He could not attempt to do justice to particular districts, or to travel everywhere. He should be governed entirely for the present by his own judgment as to what he ought to visit, for the purpose of informing himself, and so preparing himself for greater usefulness and effective action when the necessary means should be put in his hands. If he found next October that he had any valuable ideas, he should communicate them to the Government. If not, he hoped to have sufficient moral courage to confess the fact, and to abstain from a report. Mr. Raymond paid a high compliment to the industry, sincerity, and ability of his predecessor, Hon. J. Ross Brown, and showed that it was now necessary for the work to take a new shape and direction. The duty concerned first the Legislature, second the citizens of the country, and finally science. It was his business, primarily, to furnish such information and advice to the Government as would form a sound basis for legislative action. If incidentally this information should be valuable to the public, so much the better; and if the interest of science could also be subserved, then the highest aim would be accomplished. But the first duty was to the Government, and concerned therefore the relations between the Government and the mining industry.

Mr. Raymond then presented his views upon the general subject of governmental interference with mining. He claimed that as the product of mining, though of permanent value, is from a limited and exhaustible source, while agriculture furnishes a supply of perishable wealth from a perennial source, and furthermore, since the mistakes and losses of mining are to a certain extent irrevocable and irreparable, while those of agriculture are repaired by time and skill, Government has a certain relation to mining, as a trustee of the resources of the country, which it does not claim toward agriculture. He was opposed, however, to all burdens and restrictions on the miner. He thought the Government should meddle with no industry; but there were two points in which the Government was bound to legislate, the first for the sake of the miner and the second for the sake of the country. The first was the question of title, which should be settled on some equitable, free, and uniform basis. The second was a necessary safeguard against wanton or ignorant waste and destruction of our mineral resources. For this purpose

he believed a National School of Mines would be the best and the only means. He thought mining education was worth five hundred mining laws. The subject of a National School of Mines was too great a subject to be discussed this evening, but he believed in a really National school—not local, not State, but National. He did not think that a Bureau would do the work. It must be a school of Mines, and a school in which mining was to be the specialty—not mineralogy, not general science, but the business of mining. He knew that they were going to have a University, and he hoped it would be a good one, but he believed that it never should supersede the necessity for a National School of Mines. He proceeded to speak of the feeling of the mining community with regard to scientific men. There were too many who imagined that every man who came from Germany, or called himself doctor, was a perfect oracle. Again, there was a class to the full as incredulous, who never would believe that any man with a handle to his name could be anything better than a humbug. Here in California, however, above all other places known, men took their places for what they were worth; and he never would believe that while science is knowledge, and knowledge is power, science would be "played out" here. Mr. Raymond closed with the expression of his belief that the extension of knowledge among the people is the true and only security for our democratic institutions and our national glory.

Mr. Falkenau, on behalf of the Academy, expressed a cordial sympathy with the ideas advanced by Mr. Raymond, and moved that the suggestion as to mining education be made the subject of a special debate. On motion of Dr. Cooper, the third Monday in August was fixed for the opening of such debate by an address from Mr. Falkenau. The Academy then adjourned.

HARDNESS OF COKE CRYSTALS.—It is not generally known that the substance known as coke is exceedingly hard, in its minute form of crystallization. Coke is generally considered as a very soft substance. Such an impression has obtained, however, from the ease with which it may be crushed and pulverized; but it has been found that the minute crystals of which this substance is formed, are intensely hard, and are even possessed of the remarkable property of cutting glass. The term "cutting" is used here with a full understanding of its meaning, and in contradistinction from the process of "scratching," which many other substances than the diamond or coke can accomplish. The cut produced by a crystal of coke, properly manipulated, is so clear, clean and perfect, as, like the diamond cut, to exhibit the most beautiful prismatic colors, owing to the perfection of the incision. This quality of the extreme diamond-like hardness of coke, it would seem, ought to prove of value in many processes in the arts, so as to be a useful discovery as well as one of a highly scientific interest. If coke really possesses such extreme hardness, why may it not be employed as a substitute for emery?

A NEW WHALE BOMB.—While at the Golden State Foundry, a few days since, our attention was particularly attracted to a new and evidently most effective whale bomb, the invention of Captain Roys, of this city, and an improvement on the bomb generally in use, which is also his invention. The bomb, as is well understood, explodes within the body of the whale, and it is said that fully three-fourths of all the whales so killed, sink and are lost, for the reason that the harpoon which is attached to the bomb has but little holding power. This bomb is so constructed that immediately on its explosion a large cross-arm is thrown out in the cavity thereby produced, which effectually prevents the withdrawal of the harpoon, and renders the loss of the whale impossible, if the boat and tackling is sufficient to hold on. The invention, we should judge, was one of much importance to the whaling interest everywhere.

CANTON FLANNEL, previous to washing, is said to be the best article for polishing the eyes of spectacles. This recommendation is given on the authority of C. Muller, the well-known optician, 205 Montgomery street, in this city.

FLOUR MILL REMOVAL.—Workmen are busily engaged upon the new building for the Golden Gate Flour Mill, now being erected on the lot adjoining the Union Foundry, on First street. The present premises on Pine street will soon be vacated, and some ornamental structure will no doubt be erected in place of the unsightly pile of brick and rough wood work, which has so long marked the locality from which some of the finest flour on this coast has been derived.

NORTH AMERICA

Life Insurance Company.

Usual Restrictions on Occupation and Travel

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Assets, - - - over \$3,000,000.

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Amount Insured, - - - \$31,375,071 00.

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Agents wanted through city and State, and Pacific Coast.
23v16-1a m9p

BUERK'S

Watchman's Time Detector.

THIS WATCH-CLOCK WAS INTRODUCED TO THE public in almost every section of the United States and Canada about five years ago, and it has proved itself to be the best invention in the world for testing the faithfulness of Watchmen. Since its introduction, the Proprietor has improved on some parts, and corrected deficiencies and he has now

A Perfect Check upon the Watchman.
With other Clocks, a regular routine has to be followed, but with this Watchman can be ordered to visit any particular place as often as required, without being compelled to go to places where it is not necessary to visit as often. The instrument is complete in itself, portable, and as reliable as the best lever watch.

It is not so likely to become disarranged in its works as a good watch, because its parts are stronger. But when it needs cleaning, any common watchmaker can adjust it, its mechanism being simple. It requires no fixtures or wires communicating from room to room, as is the case with the ordinary Watch Clocks; a small, inexpensive stationary key is alone required at each station. By its use places can be guarded that it would be impossible to guard with any other instrument, such as Railroad Tunnels, Bridges, Yards, Ships, etc. The instrument will in all cases be warranted perfect and satisfactory. Its price is invariably Seventy-five Dollars, cash on delivery, including as many keys as are requisite, not exceeding twelve.

THIS WATCH-CLOCK IS SOLD AT A LESS PRICE THAN ANY OTHER IN THE MARKET.

The DETECTOR is extensively used by large Manufacturing Establishments and Railroad Companies in the United States, from whom numerous testimonials have been received.

This Detector is covered by two U. S. patents. Parties using or selling these instruments without authority from me will be dealt with according to law.

N. B.—Parties purchasing these Clocks should test them sufficiently in the counting-room or office, as they will not be taken back after having been injured by the Watchman through carelessness.

All communications promptly attended to. Address
J. E. BUERK, Proprietor,
47 Congress street, Boston.
23v16-6m



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HAT MANUFACTURER

And dealer in

Hats and Caps

AT WHOLESALE AND RETAIL.

635 and 637 Commercial street.....San Francisco.
125 J street.....Sacramento.
Corner of 11 and Second streets.....Marysville.
72 Front street.....Portland, Oregon.

Our wholesale House, 628 Commercial street, extending through to 637 Clay street, San Francisco, contains always a most choice, and the largest, assortment in this State. Every Steamer brings the latest issued novelties from Europe and New York, which can be found at all the above stores, at moderate prices.
23v16: m

Balders' Insurance Company—
OFFICE IN THE BUILDING OF THE
CALIFORNIA SAVINGS BANK, California
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FIRE AND MARINE INSURANCE. 10v14n9pqr

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Rolling Mill and Forge Co.,
SAN FRANCISCO, CAL.

Established for the Manufacture of
RAILROAD AND OTHER IRON

Every Variety of Shafting,

Embracing ALL SIZES of
Steamboat Shafts, Cranks, Piston and Connecting Rods, Car and Locomotive Axles and Frames

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Of every description and size.

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The highest price paid for Scrap Iron. 9v14m9p

Support Home Manufacturers.

California Pioneer Fuse

MANUFACTURING COMPANY,

MANUFACTURERS OF

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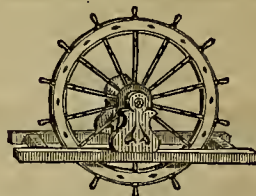
A New and Superior Article for Blasting in very wet ground, or under water.

Great difficulty has heretofore been experienced by miners, and others in the use of Fuse, which has been subjected to deterioration from exposure to dampness during transportation, or during the great length of time which has passed between its manufacture and use. In addition to great painstaking in the manufacture of the California-made Fuse, the above and many similar objections are entirely obviated, and the operator can always depend with certainty upon the burning of his fuse.

It is often the case that extra lengths are required, as exploding tunnels, etc., longer than is furnished in the imported article. Fuse of every desired length or size can be made to special order, at the above manufactory.

Manufactured by J. S. POWNING, Sec'y. JAS. EVA, Supt.
17v16-9pif

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STEERING WHEELS

ON HAND AND MADE TO ORDER.
JOB WORK done to order, at the shortest notice.
Main street, between Fulton and Harrison,
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Pipe Vise, with or without Extra Jaw.

UNION VISE COMPANY,

OF BOSTON.

Make Vises of all sizes and kinds, for Machinists, Blacksmiths, and all other heavy mechanical work. Woodworkers and other Vises, with Covered Screw, for general mechanical work. Standard Milling Machines, very simple and easily adjusted. Address, Boston, Mass. 23v16-1y

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E. O. HUNT'S

Manufactory of
Windmills, Horse-Powers
and Pumps.

Has been removed from the old stand on Second street, to
114 and 116 Spear st.,
Next above Stuart and south of
Mission st., San Francisco.

Hunt's Patent Wind-Mills, Tread Horse-Powers, Sweep Horse-Powers, (for one or four horses), Sawing Machines, Pumps of all kinds for shallow or deep wells, including Hunt's Submerged Pump, Hunt's Globe Pump, and Hunt's Single and Double-Acting Pump.

Pumping Machines and general Machinery kept constantly on hand and built to order.

Also, Water Tanks of all sizes. Having put up large new buildings specially for my business, with greatly increased facilities in the way of room and steam power, I shall be able to build everything in my line at greatly reduced rates.

All desirous of procuring water for irrigating or other purposes, are invited to examine my articles before purchasing elsewhere.

REGISTER YOUR LETTERS containing money addressed to us, or we will not be responsible. Remittances by Express must be in packages, prepaid. When practicable, it is best to remit by draft, or order, on some San Francisco bank or firm.
23v16

E. O. HUNT, Proprietor.

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Golden State Iron Works,

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TEAM ENGINES AND QUARTZ MILLS
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Self-Adjusting Piston Packing,

Requires no springs or screws; is always steam tight;
without excessive friction, and never
gets slack or leaky.

WHEELER & RANDALL'S

NEW GRINDER AND AMALGAMATOR

HEPBURN & PETERSON'S

AMALGAMATOR AND SEPARATOR,
Knox's Amalgamators,

WITH PALMER'S PATENT STEAM CHEST,

Superior for working either GOLD OR SILVER ORES, and
is the only Amalgamator that has stood the test of seven
years' continual working.
Genuine White Iron Stamp Shoes and DiesHaving been engaged for the past ten years in quartz
mining, and being conversant with all the improvements,
either in Mining or Milling, we are prepared to furnish, at
the shortest notice, the most perfect machinery for reduc-
ing ores, or saving either gold or silver. 18v14y-15WILLAMETTE IRON WORKS,
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MANUFACTURERS OF

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STEAM ENGINES, BOILERS,
And all kinds of Mining Machinery.Also, Hay and Wine Presses made and repaired
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PACKING, for new and old cylinders, manufactured
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and promptly executed. 13v13-1yJAMES MACKEN,
COPPER SMITH.

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All kinds of COPPER WORK done to order in the best
manner. Particular attention paid to Steamboat, Sugar
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MACHINE WORKS,Nos 109 and 111 Mission street, between Main and Spear,
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MACHINERY OF EVERY DESCRIPTION MADE AND
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kinds of Machinery,
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LUMP LEHIGH and CUMBERLAND COAL IN ANY
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try, by
JAS. R. RIVIER, Coal Dealer,
413 and 415 Pacific street,
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24v15-3m

Miners' Foundry

-AND-

MACHINE WORKS

Nos. 245 to 255 FIRST STREET,
San Francisco.HOWLAND, ANGELL & CO.,
PROPRIETORS,

Manufacturers of Machinery for

QUARTZ MILLS. FLOUR MILLS,
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POWDER MILLS, PAPER MILLS

Steam Engines of all Kinds.

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MINING PUMPS, HOISTING WORKS
OIL WELL TOOLS, ROCK BREAKERS,

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Machinery and Castings of all kinds, either
of Iron or Brass.Boilers and Sheet Iron Work in all its
Branches.Shoes and Dies of White Iron, manufacture
for and imported by us expressly for this pur-
pose, and will last 25 per cent. longer than any
other made on this coast.Russia Iron Screens, of any degree of fineness.
We are the only manufacturers on this coast of
the "Hicks Engine," the most compact, simple
in construction, and durable, of any Engine in
use.W. H. HOWLAND H. B. ANGELL,
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STEAM ENGINES,

Quartz, Flour and Saw Mills,

Hayes' Improved Steam Pump, Brodie's Im-
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Amalgamators, and all kinds
of Machinery.N. E. corner of Tehama and Fremont streets, above How-
ard street, San Francisco. 3-4y

BAURHYTE, McAFEE & SPIERS,

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Fine or Tubular Boilers, with plain circular or spiral
courses. Upright Fine or Tubular Boilers, Locomotive and
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scription.Hydraulic Pipe supplied at reasonable rates. In or-
dering, give the quantity of water to be supplied, height of
the fall, and total length of pipe, so as to enable the firm to
determine the diameter of the pipe and thickness of iron to be
used.Repairs.—Boilers, Smoke Stacks, Pipes, etc., put in re-
pair with promptness.To Boiler Makers and Machinists in the In-
terior.—The firm is prepared to furnish estimates of
Boilers, supply new leads, drilled and punched, and attend
to the selection and forwarding of Iron for Boilers, Pipes
and other purposes.Plans, Drawings and Specifications.—The firm
is prepared to make out Plans and Specifications, receive
estimates, and superintend the Erection of any Machinery
that may be entrusted to their care.To Inventors.—The firm is prepared to assist in de-
veloping the plans of those who have the ideas, but not the
practical experience necessary to put the same in form, by
making Drawings of their Inventions, giving them the benefit
of their practical knowledge in the construction of Ma-
chinery, and attending to the manufacture and introduc-
tion of their inventions. 1v15f

J. NEWSHAM.

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SOUTH BEACH IRON WORKS,

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MARINE ENGINES,

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All kinds of Ship-smithing and Mill work manufactured to
order. Jobbing of every description promptly attended to.
All work done guaranteed. 13v14-1y

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Job Grinding and Polishing done at shortest notice.
Special premium awarded at the last State Fair, Sac-
ramento. 4v15-4y J. WEICHHART.

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STEAM ENGINES,

Flour and Sawmills, and MACHINERY of all descriptions
made and repaired at shortest notice.Particular attention paid to repairing Reynold's Cut-off
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No. 125 First street, opposite Minna,
SAN FRANCISCO.ALL KINDS OF Brass, Composition, Zinc, and Babbitt Metal
Castings, Brass Ship Work of all kinds, Spikes, Sheathing
Nails, Rudder Braces, Hinges, Ship and Steamboat Belts and
Couplings of superior tone. All kinds of Cocks and Valves, Hy-
draulic Pipes and Nozzles, and Hose Couplings and Con-
nections of all sizes and patterns, furnished with dispatch.PRICES MODERATE. J. P. CALLAGHER. J. H. WEED. J. V. KINGWELL.
9v13-1y

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Pacific Iron Works.

First and Fremont Streets,
SAN FRANCISCO.Having been established since 1851, we have accumulated
a very large variety of Gear and other Patterns, which,
with our superior tools and appliances, give us facilities for
doing first class work unequaled on the Pacific Coast.

Among other things, we manufacture the following:

STEAM ENGINES,

Horizontal and Vertical, for either Stationary or Marine
use.

BOILERS—High and Low Pressure,

Pump, Pipe and Sheet Iron Work of every kind.

Quartz Mill Work,

Including High and Low Mortars, for wet or dry crushing;
Furnace Irons for Roasting Ores; Freiberg Barrels;
Ruff & Bench Co. Hartford, Ct. As a simple, effective, FULL
SAVING, first-class Engine, this is, without doubt, the best
Engine made in the United States.Flour Mill, Saw Mill and Sugar Mill Work in every variety;
Pumping and Hoisting Machinery; Hand-brow's
Patent Challenge Pump, for Domestic,
Ship and Mining use—the most
approved and successful
Pump manufactured.

Castings of every description, Iron and Brass.

We would call especial attention to "Wright's Patent Vari-
able Cut-off Engines," of which we are the sole manu-
facturers on the Pacific Coast, under license from the Wood-
ruff & Bench Co., Hartford, Ct. As a simple, effective, FULL
SAVING, first-class Engine, this is, without doubt, the best
Engine made in the United States.Orders promptly attended to. Prices as low as possible
for first-class work, and we intend to do no other.
GODDARD & CO. 18v16f
San Francisco, May 1, 1868.DEWEY & CO.
PATENT AGENTS,
ENGRAVERS AND PUBLISHERS
Mining & Scientific Press.
CIRCULARS FREE.
SAN FRANCISCO.California Steam Navigation
COMPANY.Steamer CAPITAL.....CAPT. E. A. POOLE
" CHRYSOPOLIS.....CAPT. A. FOSTER.
" YOSEMITE.....
" CORNELIA.....CAPT. W. BROMLEY
" JULIA.....CAPT. E. CONCKLIN.Two of the above steamers leave BROADWAY WHARF
at 4 o'clock P. M. EVERY DAY (Sundays excepted), one
for Sacramento and one for Stockton, those for Sacra-
mento connecting with light-draft steamers for Marysville,
Colusa, Chico, and Red Bluff.Office of the Company, northeast corner of Front and
Jackson streets.

B. M. HARTSHORNE, President.

13v12

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Photograph and Art Gallery,

No. 649 Clay street, bet. Montgomery
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PROPRIETORS.

Mr. J. R. MAINS, the well known Ar-
tist and Photographer, will have
entire charge of the Gallery.

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No More Runaways!

CHAPMAN'S

AMERICAN HORSE HOLDER,

Holds your horses; teaches runaway horses to stand still;
can be put on any carriage, wagon or dray.

Your Teams are Always Safe.

The State Right of the above valuable invention will be
disposed of at figures that will afford the purchaser a
chance to realize a fortune. For particulars, apply to
WM. MACDONALD,
Office of Travelers' Ins. Co.,
121 Montgomery st., San Francisco.

17v16-2m

Book Agents Wanted.

THE LIFE OF ULYSSES S. GRANT, by CHAS. A. DANA,
late Assistant Secretary of War, is now ready for canvass-
ers. This new work promises to be the most popular sub-
scription book now before the public. For further infor-
mation apply at once to
F. DEWING & CO.,
418 Montgomery street.

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COOSE BAY COAL.

The Cleanest Burning and Most Econom-
ical Fuel on the Coast.

Sold by all dealers in this city and Oakland.

EDWARD FLANAGAN,
Agent Coose Bay Coal Company.

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ROOM YET FOR IMPROVEMENT.—The im-
proved rails form the first hopeful approach
to something like perfect railways, inas-
much as from their great stiffness they can
be made to more nearly conform to, and be
maintained in, mathematical lines and
planes, than can the crooked, yielding bars
so long employed. With the latter, there is
only a rough approximation to parallelism
of way, to straightness of line, and to a
plane surface. A thousand successive
gaugings over as many feet of way, gauging
foot by foot, would show constantly recur-
ring points of tight and loose gauge; and
we actually allow, indeed we are compelled
to allow, nearly or quite $\frac{3}{4}$ inch "play"
between the flanges of the wheels and the
rail, in its supposed position of 4 ft. 8 $\frac{1}{2}$
inches from its opposite neighbor—it really
being anywhere from 4 ft. 8 $\frac{1}{2}$ inches to
4 ft. 9 inches off. In its power of support
in a vertical direction the rail receives the
blow of a driving wheel, loaded to say 5
tons, and in some cases to 7 $\frac{1}{2}$ tons, and
sinks under the wheel, and, in thus sinking,
a wave is raised both in front of and behind
the point of application of the pressure,
the rail being lifted in each direction into
the air, taking its substructure of chairs
and sleepers with it. Every plate-layer,
standing near passing trains, knows what
this is, and how the rails are hammered
into and notched upon the chairs, and how
the chairs are bedded into and driven half
way through the sleepers, and how the
sleepers are banged up and down in the
ballast, to the great consolidation of the
supporting substratum, the production of
dust, and the increase of the resistance to
traction; although upon the latter point the
plate-layer's views may not be so definite as
upon the others we have mentioned. Let
a pile be driven close to the rail, and upon
this pile place the fulcrum of a light lever
whose arms are in the ratio of 10 to 1, or
even 20 to 1. Let the shorter end be in
contact with the under side of the rail, mid-
way between two sleepers, and the other
will show, on the passage of the train, what
the rail is doing and how uneasy it is.

Nothing in the principles of mechanics
is more certain than that (as first ably main-
tained by George Stephenson) the resist-
ances to traction upon a perfect railway
would be constant at all speeds; and we
know that these resistances may amount to
so little as 6 lbs. per ton moved on a level,
this being about the minimum at slow
speed. So far, however, from this being
the measure of the resistance at 60 miles
an hour, the draught then amounts to nearly
30 lbs., if not, indeed, to more than that!
Yet we tolerate imperfect railways and sub-
mit to this enormous waste of power, with
all its attendant wear and tear, danger and
impoverishment of railway capital. We
ought to ride safely at 100 miles an hour,
and attain that speed with engines of half
the present weight. We say we ought, be-
cause if wheel and rail fitted each other, in
the manner of first-class machinery for al-
most any other purpose, three-fourths of
the present resistance at high speed would
be avoided.—Engineering.

FRENCH PATENT LEATHER.—The process
which has been so successfully adopted by
the French artisans in glazing leather, so as
to give it the repute for superior quality and
beauty which it now universally sustains,
is to work into the skin with appropriate
tools three or four successive coatings of
drying varnish, made by boiling linseed
oil with white lead and litharge, in the pro-
portion of one pound of each of the latter
to a gallon of the former, and adding a
portion of chalk or ochre—each coating
being thoroughly dried before the applica-
tion of the next. Ivory black is then sub-
stituted for the chalk or ochre, the varnish
thinned with spirits of turpentine, and five
additional applications made in the same
manner as before, except that it is put on
thin and not worked in. The leather is
rubbed down with pumice-stone powder,
and then placed in a room at 90°, put out
of the way of dust. The last varnish is
prepared by boiling one-half pound of as-
phalt with ten pounds of the drying oil
used in the first step of the process, and
then stirring in five pounds of copal var-
nish and ten pounds of turpentine. It
must have a month's age before it is fit for
use, in order to exhibit its true character-
istics.

SCIENTIFIC CANE.—An English medical
gentleman has invented an electric cane,
with the view of self-defence against noc-
turnal attack. In the handle of the cane
is placed an electric pile, with carbon points
and reflector. On touching a spring the
apparatus works, emitting a concentrated
ray of electric light, which can be thrown
full in the robber's eyes, and thus dazzling
him, safety may be found in running away.

DEATH OF A TREE SIX THOUSAND YEARS OLD.—The great Dragon Tree of Orotava, Tenerife, the King and Nestor of the Monocotyledons, is no more. A drawing of it made by Mr. Borda, 100 years ago, was published about sixty years ago by Humboldt, who first drew scientific attention to this vegetable wonder. The late Mr. Webb published, in his history of the Canaries, figures of it taken after the storm of July 21st, 1819, had destroyed half its crown; and it has recently been described, measured and photographed by Prof. Piazzzi Smyth. He gave the trunk a girth of 48½ feet, at the lowest accessible part, and a height of sixty feet. Fenzl of Florence, who announces the demise of the tree, makes the circumference about seventy-eight English feet, but intimates that he was not able to measure it exactly. When he visited it, a year ago, "it was still in excellent health, its immense crown covered with innumerable panicles of scarlet fruits, and the huge trunk, although completely decayed in the interior, sustained vigorously the spreading mass of fleshy branches and sword-like foliage." He charges the destruction of this famous historical monument to the sheer carelessness of the Spanish authorities, who might have prevented it by keeping up sufficient props. That venerable trunk was, it is said, as hollow and about as large in the year 1402 as in recent times; and the hollow had even then been used immemorially by the Guanches for religious rites. The age of 6,000 years which has been assigned to it by some of the "most sober naturalists" may not be very greatly exaggerated. Probably even the cavity was as ancient as the oldest of California Redwoods.—*Silliman's Journal for March.*

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JAMES M. TAYLOR,
Attorney and Counsellor at Law,
Court Block, 636 Clay Street,
SAN FRANCISCO.
2v15-14y

R. F. RYAN,
Attorney and Counselor at Law,
Practices in all the Courts of this State, and in Nevada.
Office, Room No. 35, Metropolitan Block,
N. W. corner Montgomery and Washington streets, San Francisco. 14v16-6m

Edward and John A. Stanley & A. W. Blair,
ATTORNEYS
AND COUNSELLORS AT LAW,
Southeast corner of California and Sansome streets, over the Bank of British Columbia. 19v16-3m

J. S. PHILLIPS, C. & M. E.,
MINING ENGINEER, Etc.,
Wadsworth House, San Francisco.
Examiner of Mineral Ledges, Mines and Mining Machinery; Drawings given, and Manufacture supervised, for Pumping, Hoisting, Crushing, separating and Reducing Appliances, by Steam, Water, Fire, and Chemicals, throughout manipulations.
Assayer of Mineral Compounds. For simple assay, \$5; Qualitative for all, \$10; Correct total Quantitative, \$20. Advice, as to the best method, and instructions for working Refractory Ores. Send one half ounce of unbroken rock.
Practical Lessons in Assaying, by Blowpipe, Spectrometer, or Chemical. Ledges of intrinsic value for gold, silver, copper, and lead, disposed of for development by capitalists. 5v16-3m

Mineral Land Law Blanks FOR SALE.

We are prepared to furnish any of the following blanks used in securing patents for lands under the National Mineral Land Act of 1866:
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Prices.—Single blanks, 10 cents; 75 cts per dozen; \$4 per hundred—postage paid.
Pamphlet containing the Law and the Instructions of the General Land Commissioner, post paid, 25 cts. Address **DEWEY & CO.,** Mining and Scientific Press, San Francisco.

Important to Californians.—Many inventors have lately had their claims for Patents seriously (and in some cases fatally) delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of honest agents, are none the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. The Mining and Scientific Press Patent Agency has strictly complied with the requisitions of the Department, and properly filed all necessary papers as Claim Agents.

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For Scholars, Teachers, Lawyers All Professional Persons, and those of Common Education, who would improve the Eloquence and Effectiveness of their Composition and Manners of Address.

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This is a new publication, and in style and treatment of this important subject, is original, simple, plain and comprehensive. The author, Prof. LAYNES (a meritorious Teacher of good standing in California, and a sound thinker and reasoner,) in his preface says: "The method pursued by the Author in developing the subject of Composition, is both the synthetical and analytical. The former is necessary to teach the theory, the latter the practice of the art; and as these are both indispensable to the scholar, so are also the two methods, as the sequel will show."

The Work has lately been approved and authorized by the State Board of Education for use in the Public Schools. To further illustrate the varied and popular endorsement the book has so rapidly received, we quote the following

RECOMMENDATIONS:

It is simple, concise, and well arranged. It seems to be a work of great value.—John Seelt.

I am prepared to concur in the recommendation of the Honorable Superintendent of Public Instruction.—J. C. Pelton.

After an careful and thorough perusal of the same as it was in my power to give, I came to the conclusion that, for conciseness, correctness, and precision of definition, as well as for completeness and simplicity of style, it was, and would be, without a rival. I regard your work as the best at its kind. I know of but few men in any profession who would not be benefited by its careful study.—Wm. H. Hall.

I regard it as one of the best treatises upon these important branches—perhaps the only one in the English language, equal advantages—combining comprehensiveness with conciseness, and of such simplicity in its arrangement as to be readily understood by the advanced pupil.—F. W. Hatch.

It is admirably arranged to develop the correct idea of the analysis and synthesis of language, and the amplification of ideas into sentences and periods. The style is clear, terse and pleasing. I do not hesitate to recommend it as a great acquisition to our text books.—James Denman.

I am happy to express my conviction of the value of the whole treatise. It would give me much gratification to see so thorough and excellent a treatise emanate from young California.—Martin Kellogg.

I recommend it to all those who wish to obtain a book that will give them the education of young men in America, and to express their thoughts and feelings in a clear, simple, and forcible manner.—Caroline L. Atwood.

I regard the book about to be published as far superior to any work extant upon that subject.—Wm. S. Hunt, A. M.

I believe the work will be a valuable and much needed addition to our school text-books.—Hernon Perry.

You have brought the results of a profound analysis, and made them available, in a practical form.—J. H. Brayton.

I can recommend it particularly to my young friends of the legal profession, as a source from which they may be able to learn much of value as special pleaders and advocates at the bar.—John Curry.

The subjects upon which you treat have heretofore been too much neglected in the education of young men in America. * * * Exactly calculated to interest. * * * It will soon become a necessity in every lawyer's library.—Charles A. Tuttle.

Its clearness and comprehensiveness make it easy.—G. W. Boice.

A gentleman of varied learning and ripe culture, who has half a dozen languages at his tongue's end. He seeks to teach the student not only how to make sentences, but how to construct them. His system has the merit of originality. We know of no work in which can be obtained so lucid an exposition of the elements of composition, and such valuable assistance in learning how to put his ideas into language. Prof. Laynes has done the cause of popular education good service.—S. F. Bulletin.

This is a San Francisco book by a San Francisco author. It contains 166 pages, and is altogether creditable to San Francisco. It meets a public want, and meets it in a form and size cheap and convenient, and in reach of the humblest.—Alta California.

The writer, the lawyer, the minister, or the statesman, may study its rules and definitions with profit. Nothing conduces more to the purity of a national literary taste than a general and thorough knowledge of the rules by which the construction of language is governed.—S. F. Times

Prof. Laynes plunges at once "in medias res." He seizes a sentence (which is the unit in composition, whether written or spoken) holds it up before you; tears it to pieces before your eyes—or rather, we should say, neatly and skillfully dissects it—displays one by one its several parts; makes you thoroughly acquainted with each, in its entirety; and then shows you how to put them together again. A series of such experiments, increasing in complexity as gradually that you do not feel the difficulty, and the thing is done; you are master of the subject.—Mining and Scientific Press.

Its design is to show that ideas can be so arranged as to increase their force, to teach the student to make sentences, to construct them, to put them together again. A desideratum long felt is supplied.—S. F. Examiner.

This is an age in which the occasions are rapidly multiplying, when educated men, and women, too, are called upon to express their views in writing, either for public or private inspection and criticism.—Sedition Independent.

The most eminent educators in California give it their hearty approval, and we concur.—Maryville Appeal.

Not only one of the best of its kind, but, what is still better, one of the briefest. It contains 166 pages.—Virginia Enterprise.

Price, \$1.10. Sent by mail, postage paid, without extra charge. Liberal reductions made to the Trade, Teachers and Schools, ordering by wholesale. Orders received by our Traveling Agents.

Address DEWEY & CO., Mining and Scientific Press, San Francisco.

CHANCE OF BASE.—As a good evidence of the growth of San Francisco, many of our large manufacturing establishments, one after another, are found seeking more room at cheaper rates, farther south or nearer the water front. We have just taken a look through the spacious new buildings, recently erected at Nos. 114 and 116 Spear street, by Mr. E. O. Hunt—formerly on Second street—and widely and favorably known throughout this coast as an inventor and builder of different kinds of machinery. These buildings have been put up specially for his business as a manufacturer of wind-mills, horse-powers, pumps, etc., covering a full water lot 136x45 feet, two stories in height, giving him ample room and greatly increased facilities. See advertisements in to-day's issue and on monthly covers.

Still other Removals.—We may mention in the above connection, that the iron door manufactory of Calvin Nutting, has lately been removed from Bush street to Market, near First; the Vulcan Forge and Machine Shop, L. P. Garcin, proprietor, from Sutter to Howard, near Beale; the Columbia Foundry, L. Reese, from Fremont to Beale, near Howard street; the Empire Foundry, Flynn & Youse, from Mission street to 204 Howard, near Beale, and the Phoenix Iron Works, from Battery to Fremont street, near Treadwell & Co's warehouse. All these removals, it will be observed, are towards the water front, from old locations more or less isolated and removed from the chief center of our heaviest manufacturing establishments.

THE OBJECTIONS TO NITRO-GLYCERINE. L. H. Mitchell, Mining Engineer, in an article written for the *American Journal of Mining*, gives the results of careful experiments made during 1865 and 1866, in four of the principal mines at Freiberg, Saxony. The advantages of this compound as a blasting agent, have already been fully and repeatedly noticed in the Press. We here give some of the objections to it as condensed from the language of Mr. Mitchell: "The fact that occasionally a part of the nitro-glycerine does not explode in blasting, renders it dangerous. The part which does not explode, is generally thrown about upon the surfaces of the rocks in the form of a thin coating, where it may by a chance blow be exploded unexpectedly. Again,—it is found to be positively injurious to the workmen; especially so are the gases arising from its combustion. In many cases, its evil effects have shown themselves in such a manner that the miners were at once obliged to abandon its use. Another objection is the want, at present, of an easy and simple method of testing the article, in order to judge of its fitness for use."

IRON AND STEEL IN FRANCE.—The French iron and steel manufacture, has since the employment of a mixture of foreign iron minerals with their own ores, assumed a new importance. With this aid, the French coke-made pig iron, which before was useless for the manufacture of puddled steel or cast steel, rendering it necessary to import from abroad costly charcoal-made pig for that purpose, can now be used for the manufacture of Bessemer steel of good quality.

New Mining Advertisements.

Fogus Mill and Mining Company.—Location of

Works: Amador County, Cal. Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of June, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, No. 318 Front street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the eleventh day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twenty-eighth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN J. SCOTCHLER, Secretary.

Office, No. 318 Front street, San Francisco, Cal. my6

Silver Sprout Mining Company.—Location of

Works and Mines: Kearsarge District, Lyon County, Cal. Notice.—The Annual Meeting of Stockholders of the Silver Sprout Mining Company, for the purpose of electing Trustees to serve for the ensuing year, will be held at the office of the Company, No. 418 California street, on TUESDAY, JUNE THIRTIETH, 1868, at 3½ o'clock, P. M.

T. B. WINDARD, Secretary.

San Francisco, June 5, 1868. my6-4w

Office Neaton Mining Company.—Location of

Works: Drytown Mining District, Amador County, California. Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-seventh day of April, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm Ashburner.....	51	1	\$100 00
J W Gashwiler.....	55	1	100 00
A L Grogan.....	31	10	1000 00
Howard Havens, Trustee.....	42	5	500 00
R F Hastings.....	57	10	1000 00
Thos LeRoy.....	34	10	1000 00
M S Latham.....	60	5	500 00
M S Latham.....	61	5	500 00
M S Latham.....	62	5	500 00
M S Latham.....	63	5	500 00
M S Latham.....	64	5	500 00
M S Latham.....	65	4	400 00
A B MacGregory.....	50	4	400 00
Geo C Pringle.....	70	5	500 00
Ed Scott, Trustee.....	49	10	1000 00
Ed Scott, Trustee.....	50	5	500 00
Ed W Smith, Acting Cashier.....	35	5	500 00
Lloyd Tevis.....	48	5	500 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of April, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 414 Broadway's Building, California street, San Francisco, on the thirtieth day of June, 1868, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOEL F. LIGHTNER, Secretary.

Office, No. 414 Broadway's Building, California street, San Francisco, California. my6

Mining Notices--Continued.

Adriatic Gold and Silver Mining Company.

Flowers District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of one dollar (\$1) per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 411 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the thirteenth (13th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

PAUL NEUMANN, Secretary.

Office, No. 411 California street. my23

Adella Gold Mining Company, Rock Creek,

Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of May, 1868, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary. Any stock upon which said assessment shall remain unpaid on the nineteenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, 37 New Merchants' Exchange, California street, San Francisco. my16

Chilpoocon Mining Company.—District of Ores,

Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of May, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 318 California street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the eleventh day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOHSE, Secretary.

Office, 318 California street, up-stairs, San Francisco. my16

The Flora Glazier Quartz Mining Company.

Location of Works: Plumas County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of May, 1868, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

L. N. THORNE, Secretary.

Office, No. 17 Montgomery Block, San Francisco, California. my23

Green Gold and Silver Mining Company.—Lo-

cation of Works: Gold Hill District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 606 Battery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the thirtieth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN B. SEXTON, Secretary.

Office, No. 606 Battery street, San Francisco. my23

Great Central Mining Company.—Location of

Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company. Any stock upon which said assessment shall remain unpaid on the fifteenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.

Office, No. 302 Montgomery street, San Francisco. my16

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

Globe Gold and Silver Mining Company.—Lo-

cation of Works: Monitor District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of May, 1868, an assessment of two dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to L. S. Powers, Silver Mountain; J. Whitehead, Monitor, or to the Secretary in San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the eleventh day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

V. B. POST, Secretary.

Office, Union street, south side, one door east of Montgomery street. my30

Hope Gravel Mining Company. Location of

Works and Property: Orass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the seventh day of May, 1868, an assessment (No. 23) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 533 Kearny street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Wednesday, the tenth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.

Office, No. 533 Kearny street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. my9

I. X. L. Gold and Silver Mining Company.—Lo-

cation of Mine: Silver Mountain District, Alpine County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth (4th) day of May, 1868, an assessment of one dollar and fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the thirteenth (13th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.

Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. my9

Lyon Mill and Mining Company, Kelsey Dis-

trict, El Dorado County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourth (4th) day of May, 1868, an assessment of one dollar and fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, Pioneer Hall, (up stairs) Montgomery street, near Jackson, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the thirteenth (13th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. CROWNSHIELD, Secretary.

Office, Pioneer Hall, Montgomery street, up stairs, San Francisco. my9

Old Colony Silver Mining Company.—Location

of Works: Austin, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 523 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the twelfth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.

Office, Room 37 New Merchants' Exchange, California street, San Francisco. my30

Office Providence Gold and Silver Mining

Company.—The Annual Meeting of the stockholders of the

above named Company, for the purpose of electing Trustees and transacting other necessary business, will be held at the office of the Company, No. 37 New Merchants' Exchange, California street, San Francisco, on the TWENTIETH day of June, 1868, at 5 o'clock, P. M. of that day.

F. P. FOLSOM, President.

J. M. BUFFINGTON, Secretary.

San Francisco, May 28, 1868. my30

Rogers Silver Mining Company.—Location:

Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1868, an assessment of one dollar per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold and silver coin, to John Barton, Treasurer, at his office, No. 218 Sacramento street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on the sixteenth (16th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. POPE, Secretary.

Office, No. 218 Sacramento street, San Francisco. my16

Whitman Gold and Silver Mining Company.

Location of Works: Indian Springs District, Lyon County,

Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of May, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Room No. 10, 2d floor of No. 402 Montgomery street, San Francisco, Cal. Any stock upon which said assessment shall remain unpaid on Monday, the twenty-ninth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLEBURN, Secretary.

Office, 402 Montgomery street, (Room No. 10, 2d floor) San Francisco, Cal. my23

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merit.

This Amalgamator Operates as Follows: The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
171
San Francisco.

SUPERIOR CUT-OFF ENGINES.

We desire to call the attention of Engineers, Manufacturers, and Millmen, to the celebrated

Hartford Engine,

With Wright's Patent Variable Cut-off, which we are now manufacturing under a license from the Woodruff & Beach Iron Work Co., Hartford, Ct. To parties wishing a First-class

Fuel-Saving Engine,

Simple and durable in construction, this Engine is offered in the belief that it is superior to any other manufactured. It enjoys the very highest reputation in the Atlantic States, where it is well known; over 300 of them having been built by the Woodruff & Beach Company, and being now in successful operation.

GODDARD & CO.,

San Francisco, Aug. 29, 1867. Pacific Iron Works. 9v15t

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3v15t SAN FRANCISCO.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAO IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rate. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest and best patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,

Stove Store, No. 125 Clay street, below Davis.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

12v15t No. 625 Mission street, near Second.

T. STEBINS,

Pattern and Model Maker,

Has recently opened a shop at No. 23 Fremont street, over Clark & Co's Foundry, where he is prepared to execute with neatness and dispatch, all kinds of models in wood, brass or iron, and patterns of every description. Jig-Saws of any size or strength, of a new and superior quality, built to order. Also, an ingenious machine for Polishing Shirts, well adapted for Laundries.

Terms reasonable for all classes of work, and regulated by the style required. 11v16-3m

OIL STOVES!

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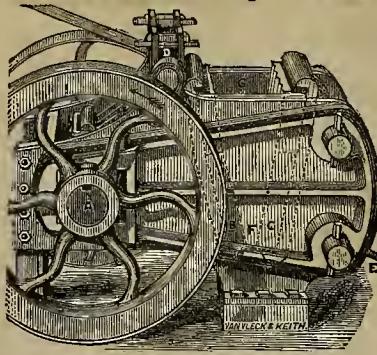
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Lead Pencils.

Every one knows, probably, what a black-lead pencil is, but it is not generally known that there is not a particle of lead in the pencil. The material variously known as black-lead, graphite or plumbago, is almost wholly composed of carbon. It probably owes its misnomer to the fact that previous to the employment of graphite for making pencils, common lead was used, and this within the present century. For a long time the best graphite was obtained, not in very large quantities, at Borrowdale, in the English county of Cumberland, where it was discovered in 1564, early in the reign of Queen Elizabeth, and pencils, much like those still in general use, were produced in the year following. As the supply of the graphite (known in Cumberland, while in the mine, by the title of wad) was not large, the British government, from the first, took great pains to prevent the exportation of the article, and even to limit its home sale to a supply just sufficient to meet the estimated demand. Graphite is found in various parts of Europe, and even in North America, but of very inferior quality. The Cumberland mines were worked only a few weeks in each year, yet the yield of wad was estimated at £40,000 a year. While the graphite lasted, England had a monopoly in supplying the best pencils to the world. Year after year, for a century past the graphite deposit in Cumberland became "fine by degrees and gradually less." The result was that graphite powder had to be compressed into a solid cake from which pencils could be supplied. A French variation, said to be an improvement, was to mix the powdered and purified graphite with clay, which is largely done still.

Nearly one hundred and fifty years ago, the pencil manufacture commenced in England, and improved in France; was transplanted to the village of Stein, near Nurnberg, in Bavaria, and, little more than a century since, Casper Faber there began to make the pencils which continue to be made by his descendants, and bear the family name, all through the world. The present John Lothair Faber, great grandson of Caspar, has been head of the firm since 1839, and is not only very wealthy, but was lately ennobled by the King of Bavaria. One of his brothers is associated with him at Stein, in the processes of manufacture; the youngest of the three, Eberhard Faber, represents the firm, for the Western World, at New York. Stein is literally a town of pencil factories, of which Baron Faber is the ruler, taking care of the health, government, education, industry, thrift, and amusements of the inhabitants, and always living in their midst. It may be asked—how do the Fabers make lead-pencils without the famous graphite from Cumberland? It appears that twenty years ago John Peter Alibert, a Frenchman, resident in Asiatic Siberia, having heard of the gold discoveries in California, began to examine the sandy beds of various rivers flowing into the Arctic Ocean. He found samples of pure graphite, evidently brought a considerable distance by force of the stream, in one of the mountain gorges near Irkutsk, and pursuing his discovery, tracked back to a branch of the Salan Mountain range, on the very summit of Mount Batougol, 275 miles west of the town of Irkutsk, near the Chinese frontier, in the midst of the rocky desert, and found pure graphite. After years of costly labor, Alibert found an exhaustless deposit of graphite equal to the best ever taken from Cumberland. Besides decorating and rewarding him, the Russian government changed the name of Mount Batougol to that of Mount Alibert. Nearly every crowned head of Europe has honored him. With the consent of the Russian government, Alibert now supplies Faber's house exclusively with graphite from the mine in Asiatic Siberia. Pencils of this material were first made by Baron Faber, in 1861, and were not introduced into the American market until 1865, from which time artists and others perceived and acknowledged their superiority. If the world were to endure a thousand years more, there is sufficient graphite in Mount Alibert to supply its population with good black-lead pencils.—Philadelphia Weekly Press.

FANNING CHAIR.—A New Jersey man has patented a chair which can be converted at will into a rocking chair; and which moreover by its rocking rotates a fan for the comfort of the occupant.

THE Consolidated Virginia Mining Company has increased its capital stock to \$3,480,000, divided into 11,600 shares, of the value of \$300 per share.

FIRST (?) MECHANICAL CONTRIVANCE.—It has been supposed by some that the balance beam and scales formed the first strictly mechanical contrivance known to mankind, and that this led to its being placed among the signs of the Zodiac. However that may be, the great antiquity of that apparatus is unquestionable, and although the Bible does not of course give us any actual description of it, we have in the sculptures of the ancient Egyptians distinct representations of such apparatus, constructed almost precisely as that in use at the present day. In one of the numerous sculptures found at Thebes, for example, there is represented a pair of scales, of which the beam is suspended by rings from a short arm projecting from an upright pillar, the scales being each connected to the beam by three cords, and a pointer projecting downwards from the center of the beam, by which, in conjunction with a plumb line, it can be seen that the scales are evenly balanced. An excellent engraving of this figure is given in the magnificent work entitled "Description De l'Egypte," published in France by the order of the Emperor Napoleon the First, a copy of which is now in the library of the Patent Office; the same work also containing engravings of other sculptures in which the beam and scales are represented, in some instances, without the pointer and plumb line. In one case a man is represented as weighing a small animal somewhat resembling a kid, the weights used being apparently in the form of rings.

HOUGH'S BAROMETER.—G. W. Hough, Director of the Dudley Observatory at Albany, stated at a late meeting of the American Association for the advancement of Science, that the observations made during the past year with his self-recording barometer, confirmed the opinion advanced by him at a previous meeting, that the barometric column is restless during a storm which may not be within several hundred miles of the instrument. The number of minute oscillations of the column, taken in connection with the movement, apparent to the eye, will indicate the comparative severity of the storm. It is probable that 100 similar instruments, properly distributed across our continent, would record the atmospheric changes with such minuteness that new and important generalizations might be arrived at.

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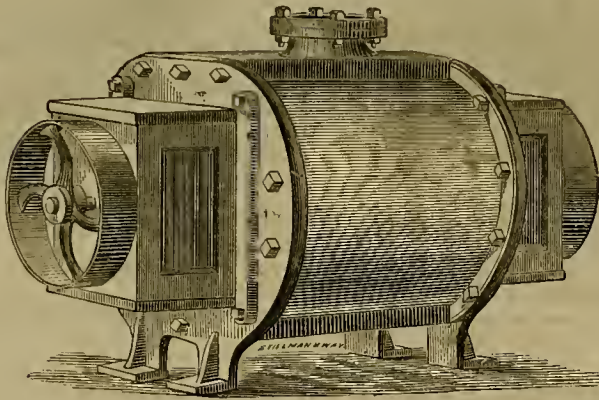
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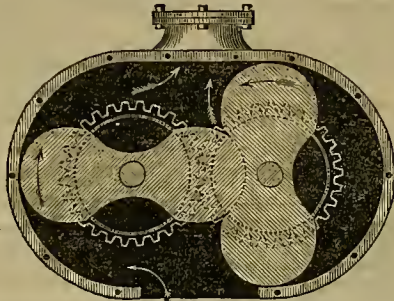
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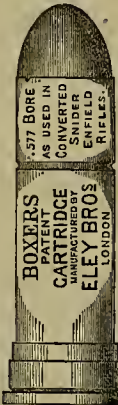
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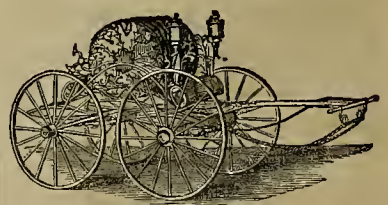
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Co-Operative Union Store.—This is becoming one of the most useful Institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block, San Francisco. 6v16-aim

SCREWED BOOTS.

LUMSDEN'S CALIFORNIA APPARATUS

FOR THE MAKING OF

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With this cheap and valuable invention, Boots and Shoes can be made on lasts, with or without being plated, in any style that is required. The State Right will be disposed of at figures that will afford the purchaser an opportunity to realize a fortune.

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NICHOLAS LUMSDEN, Inventor,
Nevada House, 51 Stevenson St.,
22v16f San Francisco.

Pacific Mail Steamship Co's

STEAMSHIPS FOR

NEW YORK, JAPAN AND CHINA.

LEAVE WHARF, CORNER OF FIRST AND
Brannan streets, at 11 o'clock A. M. of the
following dates, for PANAMA, connecting via Panama Rail-
road, with one of the Company's splendid steamers from
PANAMA for NEW YORK.
On the 6th, 14th, 22d and 30th of every month.
Steamer leaving San Francisco on the 6th touches at
Manzanillo. All touch at Acapulco.
Departure of the 14th is expected to connect with the
French Trans-Atlantic Co's steamer for St. Nazaire, and
English steamer for South America. Through tickets can
be obtained.
Departure of 14th is expected to connect with English
steamer for Southampton and South America, and Australia,
and P. & R. Co's steamer for Central America.
Through tickets can be obtained.

STEAMERS FOR JUNE, 1868.

The following Steamships will be dispatched on dates as
given below:

June 6th—CONSTITUTION.....Capt.
Connecting with HENRY CHANCEY, Capt. Gray.
June 13th—GOLDEN CITY.....Capt. Wm. F. Lapidge,
Connecting with OCEAN QUEEN, Capt. Bradbury.
June 20th—GOLDEN AGE.....Capt. E. S. Farnsworth,
Connecting with KISSING STARR, Capt. Conner.
June 27th—SACRAMENTO.....Capt. Wm. H. Parker,
Connecting with ARIZONA, Capt. Maurv.
Cabin passengers berthed through. Baggage checked
through—100 pounds allowed each adult.
An experienced Surgeon on board. Medicine and attendance
free.

These steamers will positively sail at 11 o'clock. Passen-
gers are requested to have their baggage on board before 10
o'clock.
Through Tickets for Liverpool by the Cunard, Inman and
National Steamship Lines, can be obtained at the office of
the P. M. S. Co., San Francisco, where may also be ob-
tained orders for passage from Liverpool or Southampton
to San Francisco, either via New York or St. Thomas—if
desired an amount of \$20 to \$25 will be advanced with the
above orders. Holders of orders will be required to identify
themselves to the Agents in England.

The Steamship GREAT REPUBLIC, Capt. S. Doane, will be
dispatched June 3d, at 12 o'clock, noon, from wharf, corner of
First and Brannan streets, for YOKOHAMA and HONG
KONG, connecting at Yokohama with the steamer COSTA
RICA for SHANGHAI.
For Merchandise and Freight for New York and way
ports, apply to Messrs. WELLS, FARGO & CO.,
for passage and all other information, apply at the Pacific
Mail Steamship Co's office, corner of Sacramento and
Lafayette streets.

OLIVER ELDRIDGE, Agent.

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(Successor to G. W. Bell.)

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One copy, one year, by mail, in advance.....\$5 00
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One copy, six months, by express.....3 50
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Monthly Series, per monthly copy.....65

The Circulation of the Press, already extensive, is rapidly
increasing, and substantial traders who can profit by
widely disseminating information of their business amongst
the most intelligent, influential and industrial classes of
the Pacific States and Territories, will find no more effec-
tive or economical medium for advertising.

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Patent Agency and Job Printing Office, 505 Clay street, San
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R. TAYLOR WM. D. TAYLOR

ROBERT TAYLOR & CO.,

METALLURGISTS.

SMELTING WORKS,

Corner Folsom and Eleventh streets.

SIMMONS, ROWE & CO., Agents,

Corner Pine and Sansome Streets, San Francisco.

GALVANIZING.

Also, Anti-friction, Alloys for Journals, Type and Stamp-
ing Metals, Finest and "Soldier," etc., etc.

The best price given for the most rebellious or re-
fractory ores. Ores and minerals assayed and analyzed.
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PATENT

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—AND—

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Godey.....

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Harpers Weekly.....5 00

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Literary Album.....

London Society.....6 00

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London Lk. News.....15 00

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News Dealer

AND STATIONER,

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By the Year, Month or Number.

Engraved to Order.—Persons who desire to illustrate
their individual establishments or business, should give us
their orders for Engraving and Printing, and we will guar-
antee good work and reasonable prices.
DEWEY & CO.,
Patent Agents, Publishers and Job Printers, 505 Clay st.

Order Bussey's Combination Burglar and Powder-Proof Keyless Lock!

REASONS WHY.

- 1st. It is the best Combination Lock known.
- 2d. It is impossible to pick it.
- 3d. It can be subjected to over half a million changes, and when run by a burglar, he is no nearer entrance than when he began.
- 4th. It has no key to lose.
- 5th. The more it is used the better it is liked.
- 6th. It has no signs, letters or figures, on its face.
- 7th. It is the simplest to understand.
- 8th. It is impossible to open it without knowing the set.
- 9th. It is least possible to get out of repair, as any one will be convinced on examination.
- 10th. It is the strongest Lock.
- 11th. No possible derangement of combination can be made.
- 12th. Amador County has adopted this Lock for its safes.
13. It received a special premium at State Fair.

Opinions of the Press and others in regard to Bussey's Combination Lock.

The Bank of British Columbia ordered the first one of these locks introduced in this city, and the following recom-
mendation has been received by the inventor:

BANK OF BRITISH COLUMBIA,
San Francisco, May 24, 1866.

Recently, two of Wm. C. Bussey's new Patent Com-
bination Burglar-Proof Locks were placed upon the vault
doors of the Bank of British Columbia. They are found
to operate with all the efficiency claimed by the inventor
and in every way meet our fullest approval.

They were ordered upon mature deliberation, after
strict investigation of their merits, in comparison with
some of the most noted and popular old styles of combina-
tion locks.

We deem the lock entirely burglar-proof. It is strong
in construction, without intricate or delicate parts, with
simple and easy movement. We find no difficulty in
either opening or closing it, nor in changing its combina-
tions, which may be made almost innumerable.

As a California invention of extraordinary merit, we
take pleasure in recommending it to public attention, be-
lieving it to possess all the advantages which are claimed
for it.

WM. H. TILLINGHAUST, Sub-Manager.

We do hereby certify, that Wm. C. Bussey's Combi-
nation Lock is the best Safe Lock in existence, and impos-
sible to be picked. We have applied several to vaults
and Safes, to entire satisfaction to parties interested.

RITZREGE & LEAVITT,

Pioneer Iron Works, cor. Fremont and Market sts.

SAN FRANCISCO, May 6, 1867.

I do hereby certify, that Mr. Wm. C. Bussey's Com-
bination Lock is the simplest and strongest in construc-
tion, and the least possible to get out of repair; and for
Safes and Vaults in every other respect as good as any
other improved combination lock which I am acquainted
with.

JOHN R. SIMMS,

Vault Manufacturer, Oregon street.

JACKSON, April 27, 1867.

I, the undersigned, Sheriff of Amador County, do hereby
certify that I am using one of Wm. C. Bussey's Key-
less Combination Locks on my safe, which is made to
draw four bolts with facility. I believe the lock to be
the best lock ever invented, for the following reasons:

1st.—Because it is impossible for either burglar or ex-
pert to pick it.

2d.—The lock being constructed without a key-hole, it
cannot be blown to pieces by powder.

3d.—There is no possibility of deranging the combina-
tion by breaking off, or attempting to drive the knobs into
the safe. And it is in fact the nearest approach to per-
fection yet arrived at in the art of Lock making.

R. COSNER.

Attested by J. C. SIMPSON, County Clerk.

JACKSON, April 27, 1867.

The undersigned, Treasurer of Amador County, do hereby
certify, that I am now using one of Wm. C. Bussey's
Keyless Combination Locks. It is fastened to the outside
door of the Treasurer's Safe. I have no fear of any by-
stander gaining a knowledge of the set of the combina-
tion, when locking or unlocking the same. If I desire to
have access to the safe every few minutes, I can so adjust
the combination as to open this lock in two seconds of
time. I am exceedingly well pleased with the same, and
I deem this lock to be all that the inventor claims for it.

OTTO WALTHER.

Attested by J. C. SIMPSON, County Clerk.

CALIFORNIA LOCK ARCADE.—A special premium was
awarded Mr. W. C. Bussey, for his superior Combination
Powder and Burglar-Proof Safe Lock, at the recent State
Fair. We are sure no award more meritoriously
bestowed. This Lock was described at length in the
Press several months since. At that time it was adopted
by several banking houses in this city, and we are now
assured that the remarkable claims asserted in favor of
the Lock at that time, have been confirmed since by its
practical use. We feel an interest in this California in-
vention, and wish to see it speedily meet with the success
it is ultimately certain to attain. Mr. Bussey, having
properly first fairly tested his lock in California, is now
desirous of introducing it in the East, and offers to dispose
of the right for several States at very reasonable rates.—
[Mining and Scientific Press, Sept. 29, 1866.]

They are the only SAFE lock ever invented. Every
State and County treasury vault, and every bank and busi-
ness place should have one.—[Amador Ledger.]

This is a lock in which a series of rotating annular
tumblers is employed, and it consists in a novel arrange-
ment of such tumblers in connection with one or more
arms connected with one or more bolts, whereby an ex-
tremely simple and efficient lock is obtained, presenting
an almost unlimited number of combinations. For which
he was awarded a special premium at the State Fair.—
[Sacramento Union.]

We, the undersigned, practical Locksmiths, unhesita-
tingly pronounce Bussey's Improved Combination Burglar
Proof Lock to be the most reliable lock constructed.

F. MARK & FLETCHER,

No. 18 Post street.

REFERENCES:

R. COSNER, Sheriff.

O. WALTHER, Treasurer.

W. JENNINGS.

C. H. INGALLS, Supervisors.

L. MC LAINE.

Any good blacksmith can put this lock on safe doors,
Boxed or single old locks removed and this placed in their
stead, to work one, two, three or four bolts, as the case
may be.—[See page 30 in Pacific Coast Directory.]

A deaf or blind man can open this lock when he knows
the set and understands the full manipulation, without
any expert detecting the combination.

19v14y11&18.1am

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Cor. Mission and Fremont sts.,
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Cauge Cocks, Cylinder Cocks, Oil Cocks, Steam Whistles,

HYDRAULIC PIPES AND NOZZELS

For Mining purposes, Iron Steam Pipe furnished with Fit-
tings, &c. Coupling Joints of all sizes. Particular attention
paid to Distillery Work. Manufacturer of "Garratt's Pat-
ent Improved Journal Metal."

Highest Market price paid for OLD BELLS, COPPER
AND BRASS. —23

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DEWEY & CO., PUBLISHERS,
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SAN FRANCISCO, SATURDAY, JUNE 13, 1868.

VOLUME XVI.
Number 24.

Æsthetico-Neuralgicon.

We give below a representation of Von Eisenberg's "Æsthetico-Neuralgicon." It is designed for the administration of medicines in the state of vapor or extreme atomization. The construction of the apparatus may be made intelligible by a few words of explanation. The double pump

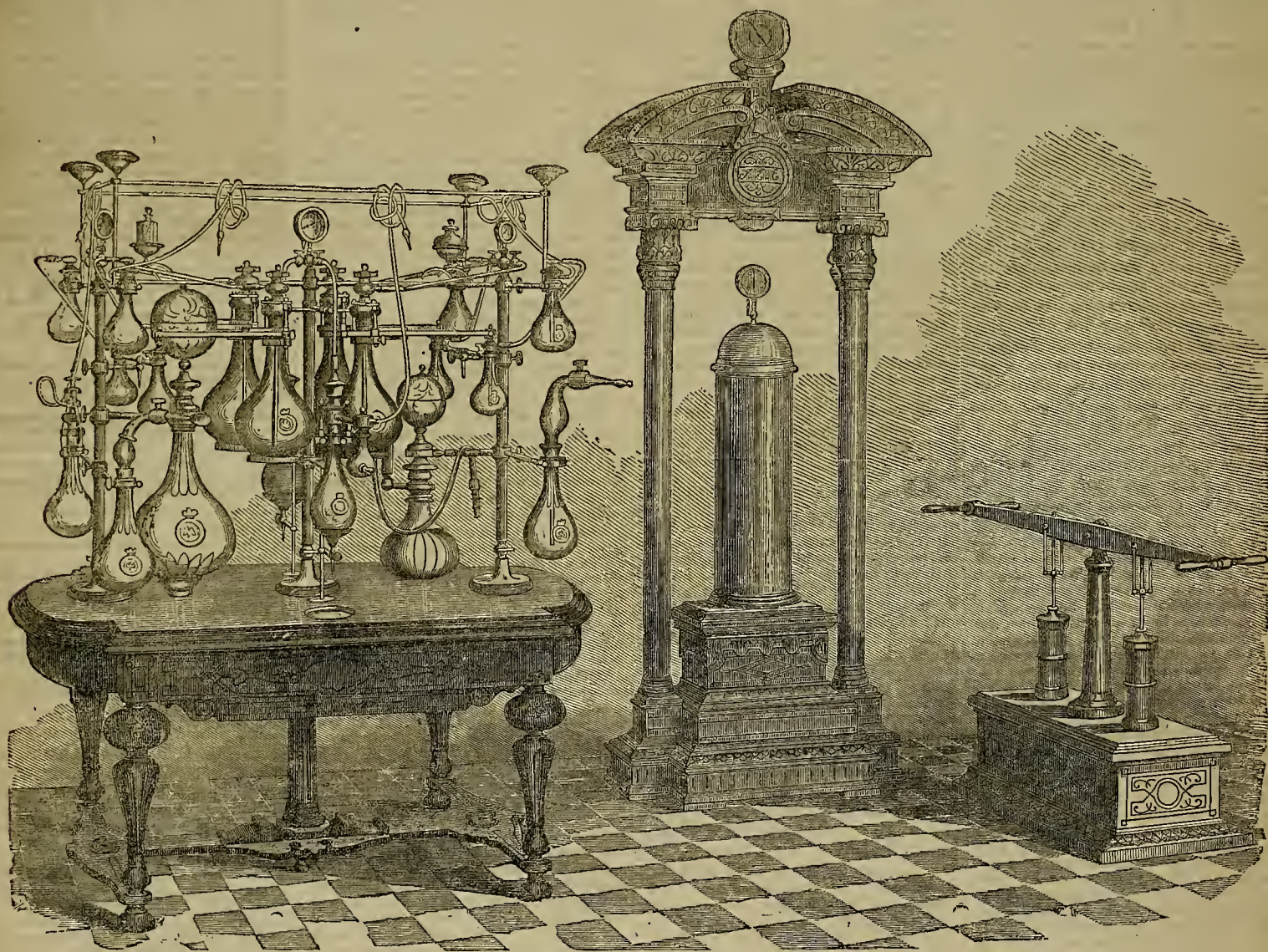
state of solution. Each is, by the admission of the aforesaid medicated vapor, still farther modified in its character. From these vessels lead flexible tubes, furnished with discharge-pieces of different forms,—according to the different uses for which they are intended, as for the eye, the ear, the head, the nasal organ, the throat, chest, or lungs. Those to be used as inhalers,

form upon the nerves;—the recognized source of many diseases.

Many of the most vital organs of the human frame can not at all, or only with the utmost difficulty, be reached by medicines in the ordinary form, either liquid or solid. Thus the lungs are shut up in a bony chest, and access can be had to them only through the wind-pipe, which is

od of administering remedies has obtained quite a large use in France and in several other European countries, and has been to a greater or less extent introduced in the Atlantic States.

The inventor of the apparatus herewith illustrated, Dr. Von Eisenberg, is said to have received his early professional training in some of the leading European con-



DR. VON EISENBERG'S "ÆSTHETICO-NEURALGICON."

on the right of the picture is for the purpose of forcing atmospheric air into a large cylinder underneath the floor, described as capable of containing some two hundred and fifty pounds of condensed air. From this cylinder it passes into another chamber, which is impregnated with the medical vapor. Thence it is admitted into the reservoir seen under the arch in the middle of the floor; and thence, again, by tubes, to the various glass vessels upon the table at the left of the picture. These glass vessels are said to contain each its separate and independent medicinal preparation, in the

are, for instance, tipped with mouth-pieces; those designed for the application of remedies to the eye or ear, with a discharge of different form. These devices have attached to them gauges or indicators, by which it is said the quantity of vapor which the several patients consume at each operation can be accurately determined; thus enabling the operator to graduate the necessary doses as may be deemed advisable. In addition to ordinary applications, as above, the apparatus is also well calculated to bring any desired remedies to act directly, and to the best advantage, in their atomized

guarded by a valve so constructed that it will not allow any liquid or solid to enter it. Many things, such as chloroform and some other extremely volatile substances, can be readily brought into contact with the lungs by the ordinary means of a saturated handkerchief; but there are many others, less volatile, which it is often desirable to apply thereto, which can only be employed by some more elaborate process of artificial volatilization or atomization. It is in the administration of such remedies that devices of this description are particularly important. This meth-

tinental schools of medicine. He has been for some years engaged in this particular branch of practice in New York, and is now briefly sojourning in this city with a view to its introduction here. We understand that his stay here will be short; but during the time he remains, he is willing to treat professionally such as may visit him at his rooms.

THE RAILROAD TRACK-LAYER.—We understand that this extraordinary labor-saving machine is still working with marked success, in its work of track-laying along the line of the Vallejo Railroad.

For Table of Contents see 8th page.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

Mammoth District, Nevada.

IMPORTANT MINERAL DISCOVERY.

EDITORS PRESS:—It seems scarcely just that the only journal devoted to the mining interest of the Pacific Coast should be without a correspondent at this new El Dorado; I therefore volunteer to take your case in hand for the present. The great lode recently found here is pronounced by all one of the wonders of the silver era. Of course it is estimated variously by the hundreds who have visited it, but all agree that there is a vast amount of wealth in sight, while many say without hesitation, that it is a most extensive and fabulously rich discovery. The Marble Falls Lode was discovered on the 25th of April, by A. T. Hatch, who attributed his good fortune directly to especial Providence. Having made all arrangements to join a party who were about to visit the gold region, south, near the Arizona line, he was detained by circumstances beyond his control. Chagrined at this disappointment, he shouldered his pick with the determination of finding a gold mine of his own, which he accomplished most successfully, as the sequel will show.

Its locality is in the north west corner of Mammoth District, $3\frac{1}{2}$ miles distant from the town of Ellsworth, eight miles north of the Wellington road, and twenty-two miles south of the Overland road (opposite West Gate). The first question by visitors is, why has this thing remained so near an old settled mining district without its value being discovered sooner? One answer may be, that the eastern part of Mammoth District abounds with argentiferous lodes that are satisfactory to the owners, who have remained content with their first discoveries, with but little inclination for further prospecting; while the district has never had the sensational reputation that others have, leading to a thorough exploration. Even the neighboring districts have been unfriendly towards it,—a feeling evidently induced by jealousy. Now, however, it stands a head and shoulders above the most famous, and is in no need of their friendship, nor fear of their ungenerous or narrow-minded policy of depreciating all but their own. Again, the immediate vicinity of the lode is difficult of access, being situated under or below a fall of several hundred feet, from which it takes its name.

The outcrop is immense, and is discernible a mile distant; 2,000 tons of quartz would be a modest statement of the amount above ground. This extends 900 feet on its trend, and ranges from ten to fifteen feet wide, with occasional expansions to forty feet. The development on the original location is thus far limited to openings in the croppings at short intervals along its course, at each of which can be seen piles of ore sprinkled with gold and native silver, massive lumps of bromide and auriferous tellurides.

Its silver garners are of the most astonishing richness, assays and working tests coming under my own observation ranging from \$400 to \$3,200 per ton in silver; the first figures being a fair average of the richest silver chimneys, while the lower strata of the lode everywhere carries an abundance of good milling silver ore.

The deposits of free gold are confined to the upper stratum, varying from ten inches to three feet in width, and seem to be generally diffused and continuous the entire length of the outcrop. The gold is nowhere, very coarse, but at several openings is of great richness, in minute particles and delicate spangles. Much of the latter character will yield from \$3,000 to \$10,000 per ton. I have made some tests of the decomposed ore that yielded at the rate of \$20 per pound. Nor is this latter grade limited in quantity; there are numerous openings where it gives evidence of permanence. The richer portion seems to be a mass of decomposed pyrites, while the thread or wire gold is found in the harder portions. No complete analysis has been made of the gold, but it is estimated to be worth \$15 per ounce.

EXTENSIONS REAL AND SUPPOSED.

The excitement, as a natural result, has led to the location of extensions both ways, (N. W. and S. E.). In the former direction, the ground is claimed for miles, and many valuable claims are being opened.

The Montana Company own the first N. W. extension of 800 feet. The lode is blind or covered on this location, with the exception of a small outcrop near their N. W. boundary. The Marble Falls Company's croppings extending in full power and richness to within a few feet of the line, renders it almost certain that this claim is of great value.

As further evidence of this, the Marble Bluff Company, who own the second N. W. extension, have struck the rich ore beyond. There can be seen at their dump five or six tons of as rich silver ore as was ever found in Nevada,—excepting that taken from the Mexican claim on the Comstock, in the spring of 1860,—considering that no selection was made, none of the vein matter being rejected.

Further to the S. W., other locations have been made which are developing splendidly; of these the Piute Company have made the most progress in development; they have a large body of ore, rich in both gold and silver.

On the next location, owned by the Union Company, the ore is eight feet in width, which yields from \$80 to \$100 per ton. This ore may be best described as an argentiferous telluride of gold.

About midway of the original location, on the Marble Falls lode, the vein matter branches, diverging to the S. W. The first location on the southerly branch, is owned by the Marble Point Company. For some distance from where it would naturally intersect the main lode, the ore of this is of the most fabulous richness in gold, its parallel only being found in the richer chimneys of the Marble Falls. I am safe in saying of both, that nothing like it has ever been exposed, considering the extent indicated.

The next locations upon this branch are the Holman and Storm King companies, owned by parties from Ione. Here can be seen from three to five feet width of ore, thickly mottled with native silver. This ore, I am informed by the Superintendent, yields about \$320 per ton in silver, and contains, by fire assay, \$40 per ton in gold,—the latter metal is of course not obtained by the ordinary silver process of reduction. All the ores of this section seem to me peculiarly adapted to Kustel's process by chlorination.

Still farther S. W., locations are being made daily. Judging by the accounts given and the specimens brought in, this belt will prove one of the most extensive in Nevada. Taken in connection with the extraordinary richness of the Marble Falls lode and its extensions, it is the most important discovery since that of the Comstock lode. The miners and prospectors are at present camped temporarily at the numerous springs in the vicinity, there being no ample building ground in close proximity to the mines. A town site has been staked out by those who desire lots at the mouth of Marble Cañon. Owing to the scarcity of water at that point, there are no buildings or inhabitants there at present. It is designed to convey water in pipes from the Marble Falls Company's mill site, one mile above, where spring water is abundant, but building ground is limited to the requirements of the company. X.

THE INVENTOR OF THE COTTON GIN.—

A lady writer in one of the weekly papers of New York City states that the cotton gin—the invention of which has hitherto been generally attributed to Eli Whitney—was in reality invented by the wife of Gen. Greene, of Revolutionary renown. We shall next be told that the sewing machine was invented by the Emperor Sonlouque.

DISINTERESTED ADVICE.—In the darkest days of the Atlantic telegraph enterprise, a friend of Cyrus Field's bought ten thousand dollars of stock for a ten dollar bill. Mr. Field offered to take the stock at a considerable advance. "Well, but what do you advise me to do, Mr. Field?" "Take your stock home," was the reply; "look it up in your safe, and never look at it or think of it till you come to me for your dividends on it." And that man is now receiving on his investment of ten dollars, \$800 per annum in gold.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES.—

The Directors have paid \$60,000 for a lot 283 feet on Nineteenth street, 183 feet on Race, fronting Logan Square, and 139 feet on Cherry street, upon which they intend to erect a commodious building.

Chromo-Lithography.

The fine specimens of this art which are being produced by Messrs. L. Prang & Co. of Boston, have called out expressions of approbation from such appreciative personages as Church, the artist, Bayard Taylor, Longfellow, John G. Whittier, and Mrs. Harriet Beecher Stowe, in autograph letters direct to Messrs. Prang & Co. Our readers will without doubt be pleased to read the following description of the process, from the New York Tribune:

Chromo-lithography is the art of picture-printing in colors; and, although not a very recent invention, it has been greatly modified and improved of late years. It might, with propriety, be called mechanical painting, as the colors are laid on one after another, mingling the different tints and shades until the picture is complete, in a manner analogous to painting with a brush; and, provided the men who undertake the work are skillful artists, there is no reason why a chromo-lithograph should fall short, in point of expression or delicacy, of the original painting which it is designed to imitate.

A few words on ordinary lithography will first be necessary in order to give the reader a clear idea of the chromo process. Briefly, then, a lithograph is a chemical drawing upon stone, the drawing being made with a greasy or oily ink upon the peculiar quality of limestone found in the quarries of Solenhofen, Bavaria. All other processes of engraving are mechanical, rather than chemical, as in wood or type work, where the impression is obtained from a raised design; or in copper and steel plate, where the design is made by deep incisions, into which the ink is rubbed. In the lithographic process, however, there is neither *relievo* nor *intaglio* design; the operation is dependent simply upon the chemical affinity existing between the greasy matter employed in the ink and that upon the stone, and the antagonism which this matter has for water, with which the stone is in all cases dampened before pulling an impression.

In chromo-lithography, the process is identical, except that a different stone is required for every color employed; and the ink used is a species of oil color, similar to that adopted by artists for painting. The number of stones used depends upon the number of colors required, usually varying between ten and thirty; and the time necessary to prepare these stones for an elaborate piece of work extends over months, and sometimes years. But the number of colors in any given picture is not always an indication of the number of stones employed as the colors and tints are multiplied by combination in being printed one over another; thus, in an engraving where twenty-five stones are used, there may be upwards of a hundred different shades of color obtained by this means. The amount of labor and detail involved in drawing the different parts of the design upon so many stones is almost inconceivable to one who is uninitiated. The *modus operandi* is as follows:

Upon the first stone, a general tint is laid, covering nearly the whole picture, and as many sheets of paper as there are to be copies of the picture are printed from it. A second stone is then prepared, embracing all the shades of some other color; and the sheets already printed with the first color are worked over this stone. A third, fourth, fifth, and sixth follow, each one repeating the process, and adding some new color, advancing the picture a step farther, until the requisite number of colors have been applied. The printing of so many colors, and the time required for drying each before the application of a succeeding one, involves months of careful and anxiously-watched labor. Great care and skill are required to perfect what is technically termed the "registering," or that part of the process which provides that the paper fall upon every stone in exactly the same position relatively to the outline. To attain this end, stout brass pins are fixed in a frame surrounding each stone. These pins penetrate the paper in making the first impression; and the holes thus made, being carefully placed over the pins in all subsequent impressions, insure the certainty of the outline on every stone falling into the same position on every sheet. At last, however, it leaves the press to be sized, embossed, varnished, mounted, and framed. The embossing is that part of the operation necessary to break the glossy light, and soften the hard outlines; a broken structure being given to the print by being passed through the press in contact with a roughened stone.

Effects of Great Heat Upon Different Substances.

After a large conflagration, which occurred some few years ago, in the city of Hamburg, Dr. Zimmerman read a paper before the Natural History Society of that city, on the "Effects of great heat upon different substances," the paper being the result of a careful series of observations made upon the "burned district." We extract as follows:

After the great conflagration there were abundant opportunities for examining the effects of high degrees of heat. There were bricks the surface of which were fused, and thus coated with enamel; lime had become brittle and loose, and reacquired its caustic property, pieces of granite burnt into fragments, and the surface of many square stones separated into thin layers. The bells were partly fused, at the same time becoming oxidized, and forming a slag and red copper ore. A portion of the fused metal broke through the vaults and entered the sepulchres, coating and filling the skulls and bones with metal,—and the bell-metal underwent a partial refining, the tin being separated by fusing, and the copper left behind in a porous state; steel became soft and condensed by glowing into a thick mass; iron, after being fused, formed a slag, and changed into a graphite-like substance, or even into magnetic iron-stone, which was found in the shape of crystalline octahedra; glass was frequently fused into a kind of enamel, but sometimes it was only fritted, had received a crystalline appearance, and resembled Réaumur's porcelain. A package of blue paper was entirely destroyed, but the smalt was left behind without undergoing any change, and found afterwards fused together into a lump.

A large collection of minerals was destroyed by the conflagration, affording a fine opportunity examining the effects of fire on such substances. The greater part of them was destroyed, being or fritted, especially the metallic minerals; the cobalt alone had been able to resist the influence of the intense heat, and the smalt had partially become harder and bright, in such parts where it was glazed or changed into a black carbonaceous substance. The sparry iron ore had preserved its crystalline form, but was transformed into brown iron ore; the green iron ore had indeed undergone the process of fusion, but still preserved its peculiar color. All the magnesian minerals resisted the red heat; garnets and opals remained unchanged; the iron garnet, however, lost its brightness and assumed a yellow-brown color; the diamonds were either entirely burnt or had become opaque and smaller. Black mica and chlorite schist became of a golden yellow, and silicious sandstone was changed into opal, clay into porcelain jasper, flints became white, fused with iron into a breccia, or were coated with a green enamel.

Another remarkable circumstance is, that the footpaths and roofs covered with asphalt did not ignite, and that the ground underneath the amoldering ruins which, for a whole fortnight—in some instances for eight weeks, or even three months—remained red hot, was so little affected by the heat, that an ice-cellar was found filled with undissolved ice.

MICROSCOPIC EXAMINATION OF ALTERED

NOTES.—Dr. E. H. Parker recently gave an account, before the New York Medical Society, of certain cases of forgery in which he had been called as an expert, and made use of the microscope to detect fraudulent alterations in certain valuable papers. Dr. Squibb, in the same connection, referred to the following case: A number of U. S. bonds were stolen some time since from a party, and their payment stopped. For a long period nothing could be discovered in relation to them. Finally, however, two bonds with the same numbers were found in Wall street, and it occurred to the parties concerned that one of these must be of the lot that had been stolen. The difficulty was to decide which was the genuine, and it was cleared up by a microscopic examination of the ruled lines upon which the figures were written in red ink. The magnifying glass showed the tracings of the old figures underneath the new, the red ink of the former having been previously removed by a chemical process.

IRON CURBING.—Pittsburgh is adopting this kind of curb. It consists of an inch plate, eighteen inches broad, pierced with holes, and having a corrugated flange at the top. The plate is imbedded perpendicularly beside the pavement, and the flange extends on the surface several inches to meet the bricks.

Mechanical.

CAST IRON WITH WOLFRAM ALLOY.—We have already spoken of the improvement in steel by the addition of tungsten, making puddled steel fit for the uses to which cast steel is adapted. Puddled iron may also be treated in a similar manner, giving an iron of great strength and toughness, suitable for wire, sheet-plate, or other articles requiring tenacity. Cast iron also is greatly improved by the same addition. The following, from a communication to the *Colliery Guardian* of April 25th, describes the manner in which the mixture is effected, by the use of wolfram: The pulverized wolfram ore is inclosed in paper bags, in proportions of four to five pounds, together with the manganese and ordinary salt, the manganese to be twenty per cent. of the weight of the wolfram ore, and the salt ten per cent. After the raw iron, destined for casting ordnance, cannon balls, rollers, machine axles, etc., is smelted in the puddling furnace, the above mixture is thrown gradually into the fluid mass, through an aperture in the furnace door, and stirred up and distributed by means of an iron bar. During this operation the draft must be excluded by closing the furnace. Then the fire must be well stirred up, and the iron mass be kept during half an hour in a state of strong fusion. At first the wolfram ore is reduced at the cost of the carbonic ingredients of the iron, when the chemical working of the wolfram begins. To produce raw iron of great firmness it will be requisite to employ a wolfram alloy of $\frac{3}{4}$ to $1\frac{1}{2}$ per cent., according to the chemical composition of the former. This alloy is recommended for the manufacture of pieces of ordnance, cannon balls, axles and other portions of machinery, as well as for propelling screws, and fine cast-iron wares, such as screws, small cog-wheels for spinning machinery, and all sorts of tempered articles. When employed in the manufacture of rollers, which should be very strong and retain a very hard surface, the wolfram alloy should be increased up to five per cent.

PENNSYLVANIA STEEL AND IRON WORKS. The Sheffield Steel Works, owned by Singer, Nimick & Co., at Pittsburgh, Pa. are among the largest in this department of manufacture in the country. They run night and day, employ 250 hands, and have a capacity of fifteen tons of steel per day. Five engines and seven boilers supply steam power. The firm make steel springs and axles on a large scale. They are now building the largest sheet mill in the Union for rolling steel, which will contain the largest chill rolls in the world. This new mill, which will be used for rolling circular saws, four to six and a half feet in diameter, plate, slab and sheet steel, will be in operation in September.—*Iron Age*, May 1th.

In the foundry of the Port Richmond Iron Works, of Philadelphia, are three cupola furnaces, the largest of which will melt twelve tons of iron per hour. In the machine shop of the same establishment there is a planing machine capable of planing casting eight feet wide, six feet high, and thirty-two feet long; a lathe that will swing six foot long, and turn a length of thirty-four feet; and a boring mill, believed to be the largest in America or Europe, that will bore a cylinder sixteen feet in diameter and eighteen feet long.

NEW ALLOYS OF LEAD AND TIN.—M. Plho describes two new alloys containing less tin than ordinary pewter, which are not acted upon by boiling acetic acid or by salt water. The first contains 1 part of tin and 2.4 parts of lead. It has a density of 9.64 and melts at 320° Fah. It is made by first melting the lead, and, after skimming it, gradually adding the tin; by stirring it constantly with a wooden stick in the mean time, the lead is prevented from settling to the bottom. The second alloy consists of 1 part of tin with 1.25 of lead. It is less malleable and more brittle than the first.

ALLOYS OF COPPER AND IRON.—Copper and iron may be melted together in almost all proportions, but it appears to be doubtful whether any homogeneous alloys can be produced. A small quantity of iron, added to bronze or brass, causes a considerable increase in tenacity. Malleable iron or steel containing copper to the extent of 0.45 or 0.50 per cent., shows symptoms of red shortness, which become decided with a larger quantity.

THE MAKING OF MORTAR.—Joseph Dy-sart of Altoona, Pennsylvania, sends the following to the American Institute Farmer's Club: "So far as my observation extends, none of our builders, masons, bricklayers, or plasterers, understand the nature of the action of limo upon sand, in the making of mortar. I make no pretension to be scientific upon the subject, but from all I can gather, I take it for granted that the action of caustic lime on the silica or sand produces a silicate of lime, which is the binding principle in common mortar. If this be true, it is clear that the longer the limo and sand can remain mixed, in the condition of mortar, sufficiently wet to enable the lime to act on the sand, the more of this binding principle will be produced; but instead of this, mortar is generally used soon after it is made. It is common for plasterers in preparing their finishing coat, to slack their lime and let it stand, as they say, to cool, for a long time before using it, but if they mix whatever sand they put in it at once, so as to have the lime act on the sand, to produce the silicate of lime, they would not only make a much better job, but it would work easier, having lost that fiery nature that plasterers in this neighborhood complain so much of; and it would not be near so liable to crack."

MELTING METALS IN METALS.—In a recent lecture on alloys by Dr. Matthiesen, in order to illustrate the difference between chemical combination and the solution of metals in metals, the lecturer plunged a rod of gold and another of copper into separate portions of molten tin contained in small crucibles heated by the flames of Bunsen gas-burners. The gold combined rapidly with the tin; but the copper rod, though previously tinned to insure perfect contact between the two metals, was not perceptibly affected. To appreciate the importance of these phenomena we must remember that the fusing points of gold and copper are almost identical, and far higher than the fusing point of tin. By a modification of the experiments performed with the molten tin, the difference in the behavior of gold and copper was exemplified in a still more striking manner. A gold rod superficially tinned, when held in the gas flame, melted at once like a rod of pure tin, while a tinned copper rod exposed to the same temperature remained unaffected as a whole, though the coating of easily fusible tin melted.—*Am. Artisan*, May 6.

IMPROVED FURNACE.—The *Loudon Mining Journal* of April 11th, thus describes a recent improvement on Juckes' furnace: The improvements consist in the use of two endless chains, running longitudinally one on each side of the furnace, which are connected by portable rods at suitable distance apart. The grate bars are hinged at one end only to these rods, the other end of each being loose, and so formed as to rest upon the hinged end of another, when in proper position in the furnace, but when passing out of the furnace into the ash-pit, they tumble over, or drop open, and thereby clear themselves from clinkers; and in order that this clearing may be more effectual, they place stops at suitable intervals, which only allow them to drop one by one. This construction and arrangement will admit of any bar being readily removed and replaced without deranging the furnace; it also gives ample air-opening, with easy means of cleaning and repairing.

TROY IRON TRADE.—Since January, 1867, wrought iron has declined from fifteen to twenty dollars per ton of 2,240 pounds, this decline being in a much greater ratio than that of the coal and pig iron employed in its production. The wages of the operatives were retained at former figures until the first of December last, at which time proposals were made to those workmen receiving wages greater than those of ordinary laborers, looking to a reduction of from ten to twenty per cent. Owing to the crisis and the impossibility of otherwise continuing work, these terms were acceded to, and labor at the reduced rates recommenced about the middle of January last. The rolling-mills of the city continue in full operation, generally to supply orders, although in some cases the products are being warehoused, in the hope of an increased demand.—*Troy Times*.

RUSTING OF POLISHED STEEL.—It is said that nothing is equal to pure paraffine for preserving the polished surface of iron and steel from oxidation. The paraffine should be warmed, rubbed on, and then wiped off with a woollen rag. It will not change the color, whether bright or blue, and will protect the surface better than any varnish.

Scientific Miscellany.

Man Began at the End of the Ice Period.

At a recent meeting of the Boston Society of Natural History, Prof. Agassiz made some remarks upon the antiquity of man, from which we quote the following:

There is no doubt that the fauna of the diluvial deposits and of the European caves consisted of animals, some of which, at least, had a circumpolar geographical distribution, and that the southern limits of animals now living in the polar regions was once much greater than now; remains of the reindeer have been found all through France to the Pyrenees and in Southern Germany. We find that these mammals had intimate relations with the ice period, and it becomes necessary for us to investigate the extent of the ice-fields at the time when the glacial period was at its height. He believed that the changes in extent which our ice-fields have undergone during successive periods, would furnish us with data for our chronology. In America, the ice-fields, at the time of their greatest extension with indefinite limits, reached the 32d degree of north latitude. In Europe they extended as far as the plains of Lombardy. Subsequent to this came a limited glacial period, in which the Southern and Middle States were freed from glaciers, but from Maine westerly the country was still ice-bound. During a third period the ice retreated to the northern shores of Lake Superior and the slopes of Mt. Katahdin, while in a fourth period, the one before the present, the continent was clothed with vegetation up to the hilly parts of Canada.

In answer to the question whether we had any means of connecting chronology with these facts, it might be stated that none of the cave animals or the large mammals which have been mentioned, have been proved to exist prior to the time of the greatest extent of the ice-fields, and, as it can no longer be doubted that man lived contemporaneously with these animals, he believed that, with the waning of the ice period, began the era of primeval man. In the successive epochs of the ice, indicated by the retreating ice, we have a relative chronology; when we ask for more specific statements of age, we find ourselves at once at a loss for an answer. Some indications might be seen in the abrasions of rocks of unequal hardness, and instances were cited in illustration of this.

In the course of the discussion which followed these remarks, Prof. Agassiz said he hoped for great results from the investigations now undertaking in our own country, and believed that marks of the reindeer would yet be found in the Carolinas.

PALEOTROCHIS.—In 1856, Prof. Emmons announced the discovery of some peculiar fossil corals in North Carolina, to which he gave the above new name, they being apparently of a new genus. Shortly afterwards, Prof. James Hall suggested to Prof. Dana that these specimens were not corals at all, but merely concretions. This was controverted by Prof. Emmons, who maintained their organic character. In *Silliman's Journal* for March, Prof. O. C. Marsh of Yale College, has an article upon the subject, in which he declares their decided inorganic nature, as made plain by careful examination under the microscope. He suggests, therefore, that the name *Palaeotrochis* be in future dropped from the genera of fossils.

CARBONIZATION OF WOOD.—M. Gillot, in his memoir to the French Academy of Sciences on this subject, says the only condition essential for the production of good charcoal, is that the operation shall proceed slowly. The decomposition of wood commences at about the boiling point of water. During the decomposition, the production of carbonic acid causes a development of heat in the retort greater than that outside of it, when the heat applied approaches 300° C. Too rapid an increase of internal heat gives rise to the formation of tar and gaseous products, diminishing in a corresponding degree the useful accessory products, as well as the yield of charcoal. The condensed products contain the largest proportion of acetic acid (about 48 per cent) when the temperature of the oven is 218° C. In this way a given amount of wood will yield about two-thirds its weight of charcoal, and 7 or 8 per cent. of acetic acid.

AMMONIA IN COAL GAS.—Dr. Guuning, of Amsterdam, has made experiments which prove that there is over one cubic foot of ammonia in every thousand cubic feet of coal gas; and that even when it is carefully purified. He calls attention to the fact that where wet gas-meters are in use, the water, being rarely if ever changed, must in time become fairly saturated with ammonia. A meter used for two years in the laboratory at Amsterdam, with a capacity for fifty-seven gallons of water, held no less than nine pounds. Since coal gas also contains sulphur compounds, there is formed sulphate of ammonia, which, converted by the intense heat into bisulphate of ammonia, attacks the glass cylinders, or chimneys, placed on the Argand gas burners.

TROPICAL PLANTS IN POLAR REGIONS.—Prof. T. Sterry Hunt considers as unsatisfactory the ingenious hypotheses proposed to account for the warmer climate of ancient times, and thinks that the true solution of the problem is to be found in the constitution of the early atmosphere, when considered in the light of Dr. Tyndall's researches on radiant heat. He has found that the presence of a few hundredths of carbonic acid gas in the atmosphere, while offering almost no obstacle to the passage of the solar rays, would suffice to prevent almost entirely the loss by radiation of obscure heat, so that the surface of the land, beneath an atmosphere rich in carbonic acid, would become like a vast orchard house, in which the conditions of climate necessary to a luxuriant vegetation would be extended even to the polar regions.—*Mechanics' Magazine*.

UPHEAVAL OF THE LAKE-BEDS.—Professor John Gregory, of Milwaukee, writes to the *Nevs* of that city that the beds of Lake Superior and Michigan are periodically upheaved by igneous action. He says: "As there is no reason why this internal igneous force should communicate at equal intervals of time, we cannot expect a recurrence of the above phenomenon at the end of equal periods. Our rivers show ample evidence of this upheaving force, as they are all of considerable depth for some distance from the lakes—a condition of things that could not exist under any other circumstances than that of an upheaving force—which would necessarily drive back the elevated surface waters into the rivers, just as we see them at different points where the rivers discharge themselves into the lake."

POLARITY ACQUIRED BY POSITION.—It may not be generally known that iron vessels, built on stocks pointing nearly north and south, become highly magnetic, and are, in fact, mariner's compasses on a large scale. This effect is due to the vibration of the plates which is necessarily produced by hammering the iron when in this position. A common poker treated in the same way will readily become a magnet. This curious fact was recently illustrated by the British ship of war *Northumberland*. Having been built with her head pointing north, her compass showed great deviation. By docking her, however, with her bow pointing south for some time, it was found that this effect was greatly reduced, and it may be in time wholly neutralized.

THE MASTODON IN SOUTH CAROLINA.—We learn that Capt. C. O. Boutelle, of the U. S. Coast Survey, whilst making explorations in the neighborhood of St. Helena Islands, S. C., recently unearthed a huge mastodon, lying in a bed of marl. The skeleton was perfect, but a portion of the bones very soft, while other parts are petrified. The bones are of enormous size. Prof. C. U. Shepard, of the South Carolina Medical College, and his son, the Professor, who recently returned from Europe, will exhumate the monster and bring it to this city. It is the first mastodon yet discovered on the Atlantic coast, though it has heretofore been met with in the West.—*Charleston Courier*, April 6th.

Fossil REPTILE FROM KANSAS.—The Philadelphia Academy of Natural Sciences has received from Kansas the bones of an enormous reptile embedded in crystallized gypsum, and is now engaged in chiseling them out and putting them together. The vertebral column is over thirty feet long, and the whole monster is believed to have been more than fifty feet in length. Prof. Cope pronounces it a hitherto unknown species of *saurian*.

SPONTANEOUS GENERATION.—M. Donné, who has so long supported this doctrine, has taken it all back. He admits that his latest researches, so far from confirming his former opinions, convince him of the correctness of the views of M. Pasteur, his old opponent.

Hughes' Atmospheric Quartz Crusher.

This is a new stamp battery which has recently been brought out from New York, and put in working order at the Fulton Foundry on Fremont street, in this city, where it may be seen in operation every Monday, Wednesday and Friday, between three and four o'clock p. m. This battery consists of four stamps; but it can be made of two or more. It is designed to answer the demand for a light, cheap and effective battery, to take the place of the heavier and more clumsy make in ordinary use. The principle of its construction is that of the Hughes' atmospheric trip-hammer. Mr. Hughes constructed his first quartz mill on this plan, about two years ago, at Rochester, N. Y. The frame work is much on the plan of an ordinary battery, on the top of which are four upright cylinders, 10 inches in diameter, 16 inches deep, and open at the top. These cylinders are of cast iron, fitted with piston-heads of two thicknesses of boiler iron, between which are clamped ordinary leather pump-valves. The piston-rods, instead of constituting a part of the stamp-stems, as they do in all the steam stamps hitherto devised, fit into a socket in the top of the stems, in such a manner that when the blow is struck, there is no connection between the piston-rod and stamp. By this arrangement, the severe and destructive jar which accompanies every drop of a stamp, is entirely removed from the piston-rod as well as from the upper works of the battery. The stamps are raised by an improved cam, which appears to apply the lifting-power in a most advantageous manner.

When the stamp is raised, a vacuum is formed in the cylinder, and on the release of the stem from the cam the pressure of the atmosphere is brought to bear upon the piston-head, with a force which drives it down with an accelerated velocity, so as to produce a blow altogether disproportionate to that derivable from the weight and ordinary velocity of a falling stamp. The weight of the stamp in this machine is but 120 pounds; but when, in falling, the pressure of the atmosphere (which on a 10-inch cylinder and a perfect vacuum, is 750 pounds) is added to the weight of the stamp, we have 870 pounds, moving with a velocity at the delivering of the blows of a 11-inch stroke, which will give it a percussive force equal to from 8,000 to 9,000 pounds. A 750-pound stamp of the old style, dropping by the mere force of gravity through the same distance, will give a blow equal to only 3,000 pounds. The atmospheric stamp of 120 pounds, is forced through a space of about eleven feet in the same period of time which would be occupied by the ordinary 750-pound stamp in falling through eleven inches of space. The difference in effect is like allowing one hammer to fall upon the head of a nail by its own gravity; while another is driven down by a powerful muscular force exerted by the arm. The stamps of this machine are calculated to drop from 140 to 175 times a minute.

The machine is very simple in construction and easily kept in order. The cost is about \$400 to the stamp; with pulleys, working drawings, etc., complete—and will be guaranteed to do a given amount of work—something like from three to three and three-fourths tons to each stamp, for every twenty-four hours. The weight of a 4-stamp battery is about 5,000 pounds. It can be set up, after the foundation is prepared, and put in running order in twenty-four hours.

The first machine of this description, with two stamps of eighty pounds each, was put up on the Golconda mine, in Canada, over two years ago, and is said to be still running and crushing about five tons every twenty-four hours. We have seen letters which state that one of the machines in Virginia

is doing from three to four times the work of the ordinary stamp. These batteries are now in operation in Canada, North and South Carolina, Virginia and Georgia. We shall probably give an illustration of this battery at an early day. Drawings of the machine may be seen at this office. Mr. R. T. Hill, former owner of the Butte Mill, near Austin, Nevada, is sole agent for the sale and introduction of this battery on the Pacific Coast, and has had large experience in quartz mining and milling. A 2-stamp battery had been running continuously at Wyckoff's Reduction Works, at Green Point, opposite New York, for several months, until the late fire which destroyed their works. The works are now being rebuilt, and a 4-stamp battery will be put up in place of the former one of two stamps.

Annual Report of the Mercantile Library.

We have received the fifteenth annual report of the President, Treasurer and Librarian of the Mercantile Library Association. The report forms a pamphlet of forty-four pages, setting forth in considerable detail the present condition of the institution, and giving, in brief, the history of the various building projects, from that of 1853 until the present, which has finally culminated in the erection of the magnificent structure within which the library is now being arranged.

It appears that the present membership is 1,818. The books and fixtures of the Association are insured to the value of \$50,000, and the new building for \$60,000; which latter it is proposed to increase. The President objects to the creation of life-memberships, believing that the Association would do better to rely upon regular dues for its maintenance. The value of the building, when completed, with the lot, is set down at \$300,000, on which there will be a final indebtedness of less than \$200,000. The lot, which cost \$50,000, is now worth \$90,000. The President suggests that the debt should be carried in the shape of bonds, bearing a low rate of interest, and payable at some future day.

It is believed that in the future the income from the property in the shape of rents for the lower story, and the increase of resources from new memberships, donations, etc., will not only furnish all the interest money required, but will also provide for the ultimate extinguishment of the debt. The books, and all the personal property of the Association, are free from any incumbrance.

It has been impossible, since the building has been in progress, for the Trustees to devote any time or attention to special or extraordinary means to raise money to assist in the work; but it is hinted that in the future, as soon as the cares and responsibility of building are over, some of the means usually resorted to by public and benevolent institutions for raising funds, will be adopted to aid in the extinguishment of the heavy indebtedness which it has been found necessary to incur, to place the Association in their present state of independence and honorable position.

The report concludes with the annual statistical and classified account of books loaned. Under this head a comparison is made between the literary tastes, as deducible from these statistics, between the reading public of San Francisco and Boston; and from which it appears that while works on fiction comprise 68 per cent. of the books taken from the Boston library, the same class of books comprise 72 per cent. of those taken from the Mercantile Library of this city. It is remarked, however, in this connection, that two very important facts are generally overlooked by those who attempt a statistical estimate of the literary tastes of a community by the figures gathered from library registers. The first is that the most careful readers

and thinkers have in their own private libraries the more valuable works upon particular and useful subjects, and consequently do not depend on libraries for such reading matter. Secondly, a very large number of the more valuable works of all libraries are kept only for reference, and are not allowed to be taken away. Hence, a vast amount of the better class of reading is done in every community which does not appear in the usual library reports. We shall endeavor to give an illustrated description of the new library building in our next issue.

The State University.

The *ex-officio* and appointed Regents of the State University met on Tuesday last, and completed the filling up of the Board, by the election of eight additional members. The full list of Regents stands as follows:

Regents Ex-officio.—H. H. Haight, Governor of California; H. Holden, Lieutenant Governor; C. T. Ryland, Speaker of the Assembly; O. P. Fitzgerald, Superintendent of Public Instruction; C. F. Reed, President of the State Agricultural Society; A. S. Hallidie, President of the Mechanics' Institute. To serve during their respective official terms, varying from one to four years.

Regents Appointed.—Samuel Merritt, 2 years; John T. Doyle, 4 years; R. P. Hammond, 6 years; John W. Dwinelle, 8 years; Horatio Stebbins, 10 years; Lawrence Archer, 12 years; William Watt 14 years; S. B. McKee, 16 years.

Elected Members.—Isaac Friedlander, 2 years; Edward Tompkins, 4 years; J. Mora Moss, 6 years; S. F. Butterworth, 8 years; A. J. Moulder, 10 years; A. J. Bowie, 12 years; F. F. Low, 14 years; John B. Felton, 16 years.

One appointed and one elected member of the Board will go out of office every two years, until the first term of sixteen years has been fulfilled, when each of the two latter class, as they afterwards come into office, will serve for the full period of sixteen years. The full Board, as will be seen, comprises twenty-two members. It is to be hoped they will each and all enter upon their important duties with zeal and intelligence, to the end that the new University may start out with all the advantages which may be desirable for the liberal provision which has been made for its maintenance.

The Board of Regents met at the office of Haight & Temple yesterday forenoon. The newly-appointed members having been inducted into membership, the organization was completed. A committee was appointed to report on the location of the Agricultural College, and another to procure rooms for the business of the Board, and a third to report upon the distribution of business, the raising of standing committees, the rules and by-laws of the Board, and the order of transacting business at the meetings of the Regents.

MODERN PRACTICE OF PHOTOGRAPHY, BY R. W. THOMAS, F. C. S.—We have received from Henry Carey Baird, of Philadelphia, the publisher, a copy of this work. It is a neat volume of seventy-two pages. The author quotes, as a starter, Voltaire's saying, that "the fault of most books is that they are too long." The book contains six chapters, and will be found a valuable manual for all who have devoted themselves to this wonderful art of sun-painting. The price is seventy-five cents in currency, free of postage.

THE PAVILION.—The floor of the Mechanics' Fair Pavilion is laid, and workmen have commenced putting up the sides of the structure. It is the intention to have it so nearly completed on the 4th of July that the literary exercises for the day may be held there.

THE LABOR EXCHANGE still continues its operations in a most successful and praiseworthy manner. It should be cherished by our citizens and liberally supported from the public, as well as from private purses.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

List of patents issued from the United States Patent Office for the Pacific Coast and Territories for the week ending May 19th, 1868:

IMPROVEMENT IN CULTIVATORS.—Henry A. Gaston, Stockton, Cal.

IMPROVED CONCENTRATOR.—Joshua Hendy, San Francisco, Cal.

IMPROVED MACHINE FOR POLISHING WOOD.—Henry O. Hooper, Diamond Springs, Cal.

IMPROVEMENT IN GANG FLOWS.—Geo. W. Manuel, San Francisco, Cal.

IMPROVEMENT IN TIRE TIGHTENER.—Silas Shirley, Santa Clara, Cal.

IMPROVED CHIMNEY CLEANER.—John J. Wait, Oreana, Nev.

PATENTS RECENTLY ISSUED.

77,868.—IMPROVED SHOE FOR AMALGAMATORS.—John H. Bullock, Gold Hill, Nev. I claim the combination and arrangement on the face of a shoe or grinder for amalgamators, of the grooves H, H, with the supplementary grooves I, I, by which the quicksilver is taken from different points at the outer edge of said shoe and delivered at different points in the rear of the same to be in the way of the following shoe, substantially as described.

The nature of this invention consists in so constructing the shoes of grinders and amalgamators, that the quicksilver which is used in the process, and which, from its density or specific gravity, would naturally be thrown to the periphery of the pan as it revolves, is caught on the toe or point of the shoes and carried to the center and back again through grooves made at different angles in the face of the shoes. The tendency of this shoe is to wear the bottom of the pan level, whereas the ordinary shoe wears the bottom off in ridges, in which condition of the pan good work cannot be done. Moreover, it is claimed that by the use of this shoe, one-sixth more pulp can be charged into the pan, than is ordinarily admissible,—and as a consequence from 15 to 20 per cent. more work can be done.

78,160.—IMPROVED LAMP-CHIMNEY CLEANER.—John J. Wait, Oreana, Nev.:

The combination of the cushion G, and the spring E, the thumb-piece F, at the lower end of the spring, and the slide D, operating on the guide-plate C, the whole constructed and made to operate substantially as and for the purposes herein described.

This invention consists in the construction of an apparatus for cleaning lamp-chimneys. It consists of a wooden handle, to which are attached a spring and cushion, connected with a guide and thumb-piece, by which the spring is expanded as desired, to press against the inner surface of the chimney. A hook is placed at the end, which may be made to hold a cloth which falls around the implement, and prevents it from being soiled in the operation of cleaning the chimney. The glass to be cleaned should be first dipped in warm water, and the implement thrust into the lower opening of the chimney. By placing the thumb on the thumb-piece, the cushion may be made to press against the entire length of the chimney, when by turning the cleaner around, the chimney will be thoroughly cleaned.

GRAIN SACKS.—The Pioneer Woolen Mills of this city will soon commence the manufacture of grain sacks from jute. The Oakland Cotton Factory has also purchased machinery for the same manufacture, and will have it in operation in season to supply sacks for the incoming crops. These bags will be furnished cheaper than those imported, and will save for the State over a million of dollars annually, which has heretofore gone abroad for our supply of that manufacture.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

Canvassing Agents wanted at this office.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
JUNE 13, 1868.

Financial.

There is probably no steadier and more unyielding money market in the Union than is found in San Francisco. Rates have not varied for a year or more. The fluctuations which have characterized the money markets of the Atlantic States have had no effect whatever upon ours. The quotations given in our former issue still remain in force. Money is obtained at 1 per cent. per month on call loans, and 10 to 12 per cent. per month for large sums on acceptable securities.

Bullion is in better supply and is quotable at the following rates: Gold bars, \$900.00, and silver bars from par to 1/4 per cent. premium. Currency bills on Atlantic cities, 3/4 to 3/8 per cent. premium on gold; sight drafts, payable in gold, 1/2 to 1 per cent.; telegraphic transfers, 1 to 1 1/4 per cent.; sterling exchange, 48 1/2 to 49; commercial exchange, 49 1/4; Mexican dollars, 4 1/2 to 5 per cent. premium; exchange on Paris, 5 francs for 30 days.

During the week a speculative movement in greenbacks occurred here, sending prices up 2 1/2 per cent. It was supposed by the operators that a scarcity of paper money existed in the market, and, in view of the fact that Government disbursements are unusually light at present, that the demand for purposes of Internal Revenue would completely drain the market. This view was fallacious, as there is more of this kind of currency held here than was expected, and prices have since receded.

The Branch Mint operations for May included 36,431 ounces of gold deposits, and 61,830 ounces of silver. The cofiage was \$660.00 in double eagles and \$54,000 in half dollars. The range for gold bars during May was \$800.00, mainly of the latter figure. In consequence of limited supplies. The amount of gold deposits in May, 1867, was 155,669 ounces, being 110,238 more than for the same month of the current year. This is attributed to the greater absorption of crude bullion by private refineries, and decreased production.

The seventeenth annual report of the Commissioners of the Funded Debt for the City and County of San Francisco has been published, and makes a favorable showing of our financial affairs. The amount of outstanding bonds, May 31st, 1867, was \$1,257,900. The amount redeemed during the past year, \$68,700; amount outstanding May 31st, 1868, \$1,189,200; interest to be provided for by the city, \$118,020. The financial operations of the Board during the year have made a net profit to the city of \$106,779. The Sinking Fund, on the 31st May, 1868, amounted to \$1,111,221, exclusive of \$68,513 due from the city on the requisition of 1866-67.

The shipments of Treasure from June 1st to date have been as follows:

June 3—Per Colorado—	
To China.....	\$535,478 41
To Japan.....	8,000 00
	\$543,478 41
June 5—Per Nebraska to New York.....	118,108 69
June 6—Per Constitution—	
To New York.....	\$274,785 43
To England.....	332,597 15
To Panama.....	15,000 00
	622,382 58
Total since June 1st, 1868.....	\$1,265,867 68
Previously this year.....	16,696,090 04
Total since January 1st, 1868.....	\$18,961,957 72
Corresponding period 1867.....	18,305,639 85

Decrease this year..... \$225,580 13

The duties paid at the Custom House in this city since June 4th, and previously this year, have been as follows:

June 5.....	\$27,583 38
June 6.....	5,542 21
June 8.....	24,841 28
June 9.....	20,005 38
June 10.....	44,389 27
June 11.....	12,648 86
Previously in June.....	91,573 45
Total in June.....	\$225,318 93
In May.....	674,532 43
In April.....	883,053 68
In March.....	159,792 87
In February.....	667,701 23
In January.....	593,238 36
Total since January 1st, 1868.....	\$3,601,638 48

City Stocks.

During the period under review, increased attention has been given to miscellaneous securities. No note sales of North Beach and Mission Railroad stock at \$62 1/2. This company disburses a dividend of 1/2 per cent. on the 15th inst. A considerable amount of Omnibus Railroad stock was sold at \$68 per share. This company also disburses its usual monthly dividend of 1/2 per cent. on the 15th inst. Spring Valley Water was in the market at \$68 to \$72 1/2, and California Steam Navigation Company at 70 per cent.

The Bank of California pays its usual monthly dividend of 1 per cent. (\$50,000) on Monday, the 15th inst. Early in the week, ten shares of Pacific Bank stock sold at 95 per cent. At a meeting of the stockholders of the San Francisco Insurance Company, held on the 8th inst., the proposition to disincorporate and wind up their business was carried by an affirmative vote of 2,555 shares out of the 3,000 representing the company.

The stockholders of the National Insurance Company held a special meeting yesterday afternoon to consider the question of disincorporation. The number of shares represented was 8,588, the total number being 10,000. The vote stood 8,168 in favor of disincorporation and 420 against such action. The company will, therefore, go into liquidation. The corporation will, however, remain in existence for one year from this date, and its capital will not be divided until after the expiration of every outstanding policy; but the assets of the company, amounting to over \$1,000,000 in gold coin, will remain as at present, primarily liable for all losses that may occur.

The offer of D. O. Mills, to surrender bonds of the civil funded debt of the State of California, issued since the 1st of January, 1855, was accepted by the Board of Examiners, at the rate of 97 1/2 cents. Twenty thousand dollars' worth of bonds were so surrendered.

Mining Share Market.

Early in the week the mining share market exhibited some improvement over the previous week, and a much better feeling was manifested among dealers. The dis-

position to invest was apparently on the increase, and the descriptions of stocks dealt in had taken a wide range, thereby increasing the aggregate sales for the week. However, at the close, the general list experienced a serious depression, and outsiders are less disposed to venture. In this connection we may state that the most pleasing feature of the market, is the increase of dividend paying companies, as well as the amounts disbursed by them. The advanced state of work in the various claims on the Comstock lode and the continued vigorous prosecution of the same, gives strong assurances of a better condition of the market, as we may reasonably look for promising developing before long. Increased attention is being bestowed upon California mines, some of which have lately been placed upon the market, and we understand others will soon follow. The productiveness of these mines is well attested by the recently published statistics. The region beyond the great Comstock belt is also attracting more than usual attention, and it is believed that the mining activity in Idaho will be immensely augmented during the present year. The not infrequent receipts of bullion at Virginia City by the overland stages from these sources is an indication of the substantial results we may expect as the summer months advance.

HALE & NONCONCISE—advanced from \$112 to \$120, declined to \$117, then sold at \$103, and closed at \$114. The bullion product in May amounted to \$69,766 86 from 2,592 tons of ore. A dispatch of the 11th inst., says they struck clay in the lower level, at a point about twenty-five feet east of east clay wall. On the 8th inst., the drift was in 190 feet. The tunnel toward the Chollar ground in the 930 level, twenty-five feet south of the main tunnel, encountered ore that will pay, but it is yet uncertain what the extent of the deposit may be. It is encouraging, however, to obtain ore at a point south of where the other body gave out.

CROWN POINT—has been tolerably active at \$109 to \$117, then selling at \$100 50, and closing at \$103, ex dividend. On the 10th inst., the shaft had attained a depth of 59 feet below the 800 level—running in hard ground, but on the following day the ground was more favorable. The drift on the 800 level was 150 feet from the line, showing four and a half feet of good pay ore in the face. On the 11th inst., they started a winze from the 800 level at a point thirty feet from the line. A dividend of \$7 50 per share is payable since the 12th inst. A dispatch of the 12th says the shaft is 64 feet in depth. In the south drift the vein had contracted somewhat, showing about 3 1/2 feet of very good ore. KENTUCK declined from \$430 to \$350, and at the close advanced to \$375. The actual bullion returns for May amounted to \$106,969 48 against \$110,616 77 in April. To date, for June account, bullion receipts aggregate \$18,069.

SAVAGE—advanced to \$163, declined to \$144, and closed at \$146 50. The statement for the week ending June 6th, shows the product of the mine to have been 1,768 tons, valued at \$47 24 per ton. This amount came from the following localities: third station, north mine, 396; fourth station, north, 206; fourth station, south, 1,061; fifth station, north, 19, and fifth station, south, 86 tons. 6,930 tons of ore were reduced in May, showing a bullion yield of \$229,760 49 against \$222,734 in April. A dividend of \$10 per share is payable since the 12th inst., leaving a surplus of \$95,000 after disbursing the same.

IMPERIAL—was in moderate request, selling within a range of \$200 to \$210, falling to \$185, and closing at \$192 50. The bullion receipts for May aggregate \$51,234 58 against \$53,579 in April. The drift on the 900 level is running in drift and porphyry, and they make about three feet per day. Expected to commence work in the vein on the night of the 11th. They continue to hoist about 100 tons of ore per day from the Alta and Holmes mines. On the 12th they had progressed two feet on the bottom of drift, running in quartz, the same being hard and barren. Little water to contend with. **EMPIRE** is quiet, selling at \$232 50 to \$225. The bullion obtained during the month of May amounted to \$17,926 90 against \$17,674 in April.

CHOLLAR POTOMI—sold at a considerable advance, rising to \$310, declining to \$285, dropping to \$260, and a closing at \$271. During the week ending June 5th, 714 tons of ore were extracted and 900 1/2 tons shipped to custom mills. It is stated that the Blue Wing stopes has changed for the better. The incline is now 253 feet in depth, and from the surface, perpendicular measurement, 1,115 1/2 feet. They expected to complete the so-called 1100-foot station the present week.

GOLD HILL QUARTZ—is in little request, selling at \$117 50 to \$95, and closing at \$105. A dividend of \$7 50 per share is payable on this stock since the 12th inst. **OVERMAN** rose from \$70 to \$77, then sold at \$69, and closed at \$67. In May the bullion receipts amounted to \$31,235 24 against \$37,000 in April.

NORTH STAR (Cal.)—This stock was called in the Board for the first time on the 6th inst., and sales were made at \$117 50 to \$112 50. This claim is located in Gracia Valley, and consists of 8,028 feet of ground. The capital stock of \$1,200,000 is divided into 3,000 shares of \$400 each. A twelve days' run, just received, aggregates \$14,800. A portion of this time a number of stamps were idle. A dividend of \$5 per share is payable on the 15th inst.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,893,723; open sessions, \$558,165—total, \$2,451,888.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows: **LORETO GYPSUM CO.**—June 11th. Capital stock, \$40,000; 400 shares, \$100 each. Trustees: W. C. Hyde, H. R. Norton, W. S. Day, S. W. Howland and W. P. Prichard.

ELECTION OF OFFICERS.—**YOSEMITE CONSOLIDATED M. CO.**—June 9th. Trustees, R. L. Bampton, Peter Brandow, Robert Stuart, Wm. K. Squires; President, David Wilder; Secretary, R. L. Bampton; Treasurer, David Wilder; Superintendent, Peter Brandow.

MINING SHAREHOLDERS' DIRECTORY.

(Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.)

Comprising the Name of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting; Day of Delinquent Sale; and Amount and Time of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY DELINQUENT.	DAY OF SALE.
Alpha Consolidated.....	Annual Meeting June 15	
Adriatic, Storey co., Nev., May 21, \$1.....	June 19—July 15	
Adolla, Sierra co., May 13, \$1.....	June 19—July 15	
Amador Co., dividend, \$6 per share.....	Payable May 7	
Rear River, Nevada co., June 10, \$1.....	July 15—Aug. 3	
Bullion, Storey co., May 25, \$10.....	payable immediately	
Crown Point, dividend, \$7.50.....	Payable June 12	
Chilonena, Mexico, May 11, \$5.....	June 12—July 6	
Chalk Mt., Nevada co., March 16, \$1.60.....	May 12—July 6	
Empire M. & M., Nev., dividend \$5.....	Payable May 15	
Focus, Amador co., June 3, \$5.....	July 11—July 28	
Flora Glazier, Plumas co., May 8, \$50.....	July 11—July 15	
Gold Hill Tunnel, Storey co., Annual Meeting July 15		
Gold Hill Q & M—dividend, \$10.....	Payable June 12	
Globe, Alpine co., May 25, \$2.....	Annual Meeting June 23	
Globe, Alpine co., May 25, \$2.....	June 30—July 18	
Greene, Lyon co., Nev., May 19, \$1.....	June 24—July 9	
Golden Rule, Tuolumne co., dividend, \$2.....	Payable Feb 25	
Hope Gravel, Nevada co., May 7, \$1.....	June 10—June 29	
I. L. Alpine co., May 4, \$1.50.....	June 13—July 1	
Julia, Storey co., Nev., April 23, \$2.50.....	May 23—June 16	
Kanaka, May 30, \$10.....	July 3—July 14	
Kentuck, dividend, \$3 per share.....	Payable March 14	
Lady Bryan, Storey co., May 25, \$1.....	July 6—July 25	
Lady Bryan, Storey co., Nev., May 25, \$10, payable immediately		
Lyon M. & M., El Dorado co., April 21, \$5.....	May 27—June 15	
North Star, dividend, \$5.....	Payable June 15	
Oscola, May 25, \$5.....	Payable immediately	
Overman, Storey co., Nev., May 13, \$20.....	June 25—July 3	
Old Colour, Lander co., Nev., May 12, \$5.....	June 24—July 6	
Providencia.....	Annual Meeting June 15	
Phila. Slides El Dorado co., April 14, 25c.....	May 25—June 10	
Rogers, Storey co., Nev., May 14, \$1.....	June 16—July 6	
Rattenside, Yuba co., April 25, \$2.....	May 29—June 12	
Santiago, Silver City, dividend.....	Payable June 9	
Savacoe, Virginia co., dividend, \$10.....	Payable June 12	
Senator, Storey co., Nev., June 9, 1c.....	July 15—July 31	
Senior Sprout, Inyo co., Annual Meeting June 30		
San Spring, dividend, \$1.....	Payable June 5	
Serogated, Belcher, Storey co., May 16, \$6.....	June 24—July 10	
S. F. Moss ledge, Arizona, May 2, \$20.....	June 5—June 22	
Seaton, Amador co., April 27, \$100.....	June 5—June 30	
Union, Storey co., Nev., June 2, \$5.....	July 7—July 28	
Virginia & C. H. Water Co.....	Dividend, payable May 15	
Whitman, Lyon co., Nev., May 21, \$10.....	June 24—July 15	
Yosemite, Lander co., Nev., June 9, 75c.....	July 16—Aug. 5	

* Those marked with an asterisk (*) are advertised in this journal.

Latest Stock Prices Bid and Asked.

S. F. STOCK AND EXCHANGE BOARD.

FRIDAY EVENING, June 12, 1868.	
MISCELLANEOUS STOCKS.	Bid. Askd.
United States 7 1/2 per cent. Bonds.....	71 1/2 72 1/2
Local Tender Notes.....	71 1/2 72 1/2
California State Bonds, 7s, 1857.....	90 90
San Francisco Bonds, 10s, 1851.....	102 103
San Francisco City Bonds, 6s, 1851.....	80 81
San Francisco City and County Bonds, 6s, 1858.....	80 81
San Francisco City and Co. Bonds, 7s, 1856.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1852.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1854.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1856.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1858.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1860.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1862.....	87 1/2 88 1/2
San Francisco City and Co. Bonds, 7s, 1864.....	87 1/2 88 1/2
Sacramento City Bonds, 6s.....	75 75
Sacramento County Bonds, 6s.....	75 75
Marquette Bonds, 10s.....	75 75
Stockton City Bonds, 10s.....	75 75
Yuba County Bonds, 10s.....	75 75
Santa Clara County Bonds, 7s.....	75 75
Butte County Bonds, 10s, 1850.....	70 70
San Mateo County Bonds, 10s, 1850.....	70 70
California Steam Navigation Co.....	71 71 1/2
Spring Valley Water Co.....	60 60 1/2
State Telegraph Co.....	25 30

GAS COMPANIES.	
San Francisco Gas Co.....	73 79
Sacramento Gas Co.....	50 50

RAILROADS.	
Sacramento Valley Railroad.....	40 45
San Francisco and San Jose Railroad.....	68 70
Central Railroad.....	60 60
North Beach and Mission Railroad.....	63 61
Front Street, Mission and Ocean Railroad.....	11 12

BANKING INSTITUTIONS.	
California Loan and Savings Society.....	90 100
Bank of Pacific Accumulation Loan Society.....	137 155
The Bank of California.....	137 155

INSURANCE COMPANIES.	
Fireman's Fund Insurance Co.....	113 120
Pacific Insurance Co.....	85 85
San Francisco Insurance Co.....	100 100
Merchants' Mutual Marine Insurance Co.....	470 483
California Mutual Insurance Co.....	130 130
Union Insurance Co.....	85 85
California Home Insurance Co.....	19 20
Home Mutual Insurance Co.....	19 20
Occidental Insurance Co.....	71 76
National Insurance Co.....	71 76

MINING STOCKS—WASHOE DISTRICT.	
Alpha.....	61 62
Baltmore American.....	2 6 1/2
Belcher.....	30 30
Bullion, G. H.....	102 105
Confidence.....	45 45
Chollar-Potosi.....	270 272
Danley.....	7 7 1/2
Exchange.....	225 230
Empire Mill and Mining Co.....	114 120
Gold & Curry.....	100 105
Gold Hill Quartz.....	113 115
Hale & Norcross.....	192 194
Imperial.....	370 375
Kentuck.....	27 30
Lady Bryan.....	60 65
Overman.....	70 72
Savage.....	145 147
Sierra Nevada.....	34 35
Yellow Jacket.....	110 115
Golden Rule, California.....	10 10

San Francisco Market Rates.

Wholesale Prices.	
FRIDAY, June 12, 1868.	
Flour, Extra, per bbl.....	\$6 25 @ \$7 75
No. Superfine.....	5 50 @ 6 25
Corn Meal, per 100 lbs.....	3 00 @ 3 50
Wheat, per 100 lbs.....	2 25 @ 2 50
Oats, per 100 lbs.....	2 25 @ 2 40
Barley, per 100 lbs.....	1 05 @ 1 30
Hay, per 100 lbs.....	2 50 @ 3 50
Sticks, per 100 lbs.....	75 @ 1 75
Beans, per ton.....	10 00 @ 12 00
Live Oak Wood, per cord.....	9 00 @ 10 00
Red extra, dressed, per bbl.....	3 00 @ 3 50
Sheep, on foot.....	4 1/2 @ 7
Hogs, on foot, per bbl.....	6 @ 8
Hogs, dressed, per bbl.....	14 1/2 @ 15
Sugar, crushed, per bbl.....	10 @ 11 1/2
Do. China.....	10 @ 11 1/2

Coffee, Costa Rica, per bbl.....	16 @ 17 1/2
Do. Rio.....	16 @ 17 1/2
Tea, Japan, per bbl.....	65 @ 85
Do. Green.....	60 @ 1 25
Hawaiian Rice, per bbl.....	6 @ 6 1/2
China Rice, per bbl.....	37 1/2 @ 45
Cashmere, per bbl.....	19 @ 25
Ranch Butter, per bbl.....	20 @ 25
Islands Butter, per bbl.....	17 @ 25
Chinese, California, per bbl.....	13 @ 15
Eggs, per dozen.....	21 @ 24
Lard, per bbl.....	14 @ 15
Ham and Bacon, per bbl.....	12 @ 16
Shoulders, per bbl.....	9 @ 10

Retail Prices.	
Butter, California, fresh, per bbl.....	35 @ 40
Do. pickled, per bbl.....	25 @ 30
Do. Oregon, per bbl.....	15 @ 20
Do. New York, per bbl.....	35 @ 40
Cheddar, per bbl.....	20 @ 25
Honey, per bbl.....	25 @ 30
Eggs, per dozen.....	45 @ 50
Lard, per bbl.....	15 @ 17
Ham and Bacon, per bbl.....	22 @ 24
Oranberries, per gallon.....	65 @ 1 00
Peaches, per bbl.....	2 @ 3
Tomatoes, sweet, per bbl.....	1 @ 1
Onions, per bbl.....	1 @ 1
Apples, No. 1, per bbl.....	4 @ 5
Do. No. 2, per bbl.....	3 @ 4
Plum, dried, per bbl.....	11 @ 12
Peaches, dried, per bbl.....	10 @ 11
Oranges, per dozen.....	51 @ 55
Lemons, No. 1, per dozen.....	50 @ 55
Chickens, per piece.....	80 @ 75
Turkeys, per piece.....	21 @ 25
Soap, Pale and G. O.....	7 @ 12
Soap, Castile, per bbl.....	16 @ 17

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

FRIDAY, June 2, 1868.	
Iron.—Duty: Pig, \$9 per ton; Railroad, 60c per 100 lbs; Bar, 10 1/2c per lb; Sheet, polished, 3c per lb; common, 1 1/2c per lb; Plate, 1 1/2c per lb; Pipe, 1 1/2c per lb; Galvanized, 2 1/2c per lb.	
Scotch and English Pig Iron per ton.....	\$— @ \$47 50
White Pig Iron per ton.....	47 @ 50 00
Refined Bar, bad assortment, per bbl.....	— @ —
Refined Bar, good assortment, per bbl.....	— @ —
Boiler, No. 1 to 4.....	— @ —
Boiler, No. 5 to 8.....	— @ —
Sheet, No. 10 to 15.....	— @ —
Sheet, No. 14 to 20.....	— @ —
Sheet, No. 24 to 27.....	— @ —
Corrosion Duty: Sheathing, 3 1/2c per lb; Pig and Bar, 3 1/2c per lb.	
Sheathing, Yellow.....	— @ —
Sheathing, Old Yellow.....	— @ —
Boils.....	— @ —
Composition Nails.....	— @ —

Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Amador County.

Ledger, June 6th: Messrs. Coney & Bigelow are now enlarging their chlorination works to double their present capacity. They will by this means be enabled to work their own sulphurets, and also all that may be offered. They have made a contract to work 200 tons for Mr. Morgan, of the Oneida mine.

Upper Rancheria is said to be now one of the best placer mining camps in the State, and a great deal of work is being done and new claims opened up.

Dispatch, same date: The B. B. Mining Co. are progressing with their claim finely. The level is now completed from the shaft along a fine bed of gravel to the extent of 40 ft. or more. The car is now ready to put in and it is thought that the rails will be laid this week. Mr. Tibbitts and S. S. Mannon prospected the gravel, and found of gold one to two bits to the pan.

Calaveras County.

Correspondence, May 23d: Railroad Flat Correspondence: The Petticoat mine, 13 miles from Mokelumne Hill, is in a splendidly timbered country and lumber is cheap. A site for the mill will be furnished by stripping and washing the gold-bearing gravel on the south of the main shaft. Hephurn & Co's mill is taking in quartz, but not just now crushing.

Mariposa County.

Gazette, June 5th: We learn that very rich rock has been struck in the Potts mine, Hunter's Valley. It is said to be richer in gold than ever before known. The rich strike is in the main lode, and was made during the past week.

Nevada County.

Transcript, June 4th: From a gentleman who came from Diamond Creek yesterday, we learn that the snow on the ridge is about eight ft. deep. The miners on the creek have commenced operations and the prospects are first rate.

The owners of the Norridgewalk mine have commenced pumping out the water from their shaft. They intend to thoroughly test the ledge before they stop work again.

Gazette, June 4th: The North Star mine at Grass Valley, has recently increased its capital stock to \$1,200,000, to be divided into 3,000 shares at \$400 each.

Same of 8th: The incline shaft in the Banner mine is now down to a depth of 470 ft., and levels are run at distances of 100 ft. apart, with the exception of the upper, which is 120 ft. from the surface. The third level, 320 ft. below the surface, has been run 480 ft. north from the incline. The work of sinking the incline and running the lower levels is carried on night and day, while workmen are engaged in stoping out the rock above. Forty-two miners are employed. The company have just put up a Varney rock-breaker, which was started in operation on Saturday, and works admirably. Mr. Tisdale informs us that the ore continues to pay very evenly, ranging perhaps from \$20 to \$25 a ton.

The owners of the second, north extension of the Banner mine are actively engaged in developing their claim. A double incline is now down 40 feet, some 15 feet deeper than the tunnel. The walls are smooth and well defined, and the ore is rapidly improving as they get below the surface disturbances.

Same of 9th: In the Eagle ledge the tunnel is now in 320 ft., all but the first 70 ft. having been through blasting rock. The rock in some places was so hard that they were not able to make more than 18 in. or two ft. a week. They are now very near the ledge.

At Washington, some of the claims have got started up and are doing well. The old Portuguese claim is being fitted up with new wheel and hoistways and will commence operations next week. The claim of D. Eshach & Co. runs day and night, employing 10 men, and taking out over \$120 per day. Bohannon, Grissel & Co. just below, are making fair wages, although they think that they have not struck the richest gravel as yet. On Brandy Flat, just below Washington, Brimskill & Co. are running through a good streak of dirt and think that it will pay well. Brown & Co's claim at Rocky Bar commences pumping out next week.

The Belle Oro tunnel is now in about 120 ft., and is supposed to be within 10 to 20 ft. of the ledge. The last 20 or 30 ft. has been in blasting rock, and the progress has of course been slow. The ore from near the surface prospects fairly. A sample of sul-

phurets, worked by the chlorination process, yielded at the rate of \$150 per ton.

The Daylight, five miles above Washington, is being worked. The rock looks well. Charley Maroin is patiently pulling along at his tunnel at Phelps' Hill.

Grass Valley Union, June 4th: The Dromedary mine is taking out good looking rock. A crushing just made, gives the handsome return of \$1,418, for 42 loads of rock.

The report that operations on the Allison Ranch mine are to be commenced, was without authority.

We saw yesterday a gold brick valued at \$5,100, the result of a crushing of 79 loads of rock from the Grant mine, near Forest Springs.

Letter from Moore's Flat: At the Birchville mine, near Graniteville, the contractors are driving away at the tunnel, of which they have 460 ft. completed, leaving about 140 ft. yet to finish. The rock is pretty hard. The last crushing, from the upper level, yielded \$40 per ton. The Mutual Co., better known as the Jim, commenced crushing this week, and their rock, as it is in the dump, looks well, and the copper plates at the mill indicate a fine clean up. This company will make a splendid season's work. A gentleman presented us with a specimen, which shows free gold plentifully sprinkled through it. From the Jim we went to the old California mill, which was hurned down some years ago. In former days this mine paid well, and it is probable that another mill will soon be at work. About 100 yards from the old mill is a reservoir filled with tailings, collected there during the lifetime of the old California, and this is held at a pretty high figure by the owner. The Manhattan ledge is six ft. in width, filled with sulphurets, and looks well in all respects. On the Southern Cross ledge, the owners are now at work and are in high spirits. The rock coming out shows well. Palmer & Everingham of Nevada City, are about to erect a custom mill on the South Fork of Poor Man's Creek, about half a mile from the Birchville. Sweet's ledge is soon to be worked again. Black & Young are running their mill only during the day time. Stacey & Banbury, just above Black & Young, have let a contract for a tunnel. May, Banks, & Co. are running a tunnel on the Ione. The Mulligan or "Golden Age," will soon start up. The rock of this pays \$15 per ton by mill process. Clark & Deho are at work on the Bald Mountain ledge. The Grizzly, at the head of Devil's Cañon, have machinery on the road, and will soon start their 10-stamp mill. They have been taking out rock all winter. Buck & Co., have named their discovery the Metropolitan. This claim is situated between Orleans and Moore's Flats, and shows free gold all through the rock.

Grass Valley National, June 4th: About ten days ago the pump on the Hope Gravel Co's mine was started up, since which time it has been going constantly day and night. The water has been reduced in the shaft about 50 ft., and it is thought the mine will be pumped dry within two weeks, when the company will commence taking out gravel. The shaft is now down about 216 feet.

The Empire Mining Co. of Grass Valley has increased its capital stock from \$100,000 to \$500,000.

Plumas County.

Quincy National, June 6th: At Black Hawk, Turner, Rice & Co., cleaned up this week, for 20 days' pipping on top gravel, 50 ounces. They will commence cleaning up bed rock in a short time, when high pay is expected. Madden & Co. are making good wages—from \$4 to \$6 per day. Other claims on the creek are doing well.

Poor Man's Creek Correspondence: Everything here is working smoothly. Bradley, Cain & Co. are opening a new claim on the South Fork. White, Gains & Co., are running night and day. Ex-Judge Beard is Superintendent of the Catville claims, and making money. T. A. Turner arrived yesterday from Nevada, and will resume work on his claim.

At Sawpit Flat, the miners have commenced washing their drift-dirt, which has accumulated during the winter months. Thus far, their pay has been good. The New York Co., for two days' washing, cleaned up 400 ounces, or over \$7,000. The Buckeye are taking out from 40 to 50 ozs. per week. The Union and Eagle companies will commence washing in a few days. They have a large lot of pay dirt in their dumps.

Placer County.

Stars and Stripes, June 4th: Colfax letter: The Rising Sun quartz mill was set in motion on Monday last with every prospect of success. Stock has been sold for \$20 per foot. Other ledges are being prospected with very flattering results.

Gold Run letter: This place is doing bet-

ter than for some time. The great tunnel project seems to get along rapidly. Every claim that had any intention of washing this season is in fine running order. (The Kinder & Stewart claim cleaned up last week and realized the sum of \$47,738.) Several other companies have cleaned up with similar results. The usual length of run here is from 18 to 20 days. The cement mill is still crushing its blue lead gravel with good results. Since the reduction of the price of water, several new claims have been opened.

Grass Valley National, June 8th: We are informed that a clean up was made of the rock from the Rising Sun, near Colfax, on Saturday last. After a run of six days, with a 5-stamp mill, \$6,000 was realized. The mine has been worked to the depth of 117 ft. and the ledge has every indication that it will continue to hold out. Where the company are now taking out rock the ledge is over three ft. thick.

Shasta County.

Courier, June 6th: The yield of the Washington mill, at French Gulch, for the month of May, amounted to \$6,752.45. The run was not made on the best quality of rock.

Piety Hill letter: McPherson & Co. have cleaned up, and the result, I understand, is quite satisfactory, the amount being several thousand dollars.

The quicksilver mine on South Fork is undoubtedly very rich, but it will require means to develop it.

Sierra County.

Downieville Messenger, June 6th: We understand that Gray & Co., of the Gold Valley Quartz Mill, have commenced work for the summer. Their rock is very rich, but peculiarly intractable, though the owners believe they have got the advantage of it now.

We paid the Galloway diggings a visit a few days since, and found three companies working, and were not a little surprised to find that the tunnels are located near the summit of the range. It does not seem possible that pay dirt of such richness could be found so near the summit, on such rolling surface. We believe the prospects of all the companies are flattering, and ere long a larger force of men will be required.

At Port Wine, the mines are understood to be paying better of late, and times look more promising.

Siskiyou County.

Yreka Union, June 6th: Last week the claim of John Lessard & Co. of Humboldt, yielded \$700; the claim of Romine & Co., \$500, and the claim of Harry Pickman & Co. about \$500. All who are washing up on this stream are doing well.

Lash & Co., of Humboldt, have started their quartz mill and are crushing, at present, quartz taken from the Eliza ledge. The ledge is from four to six feet in thickness.

Tulume County.

Sonora Democrat, June 6th: Mr. Snow, of the Cosmopolite mine, took out nearly \$500 in free gold last week, of which one piece weighed \$50. This is independent of the gold taken from the rock crushed at the mill.

Yuba County.

Marysville Appeal, June 7th: We learn that the Rattlesnake and Pennsylvania mines are crushing gold rock—the former first-rate and the latter rate the first.

BRITISH COLUMBIA.

A dispatch from Victoria dated June 7th, is as follows: A party of miners started for Takon, 150 miles north, to prospect for gold. The Indians report that rich diggings are found in that neighborhood.

COLORADO.

Denver News, May 20th: Letter from Jamestown: The ore from the American lode yields in an arastra \$100 to \$120 per cord in gold, at an expense of \$50. Its weight is about 4 tons to the cord. The Potosi has a crevice averaging 5 ft. Two shafts, respectively 90 and 120 ft., have been sunk, and a level connects them at a depth of 30 ft.

Letter from Ward District: The average yield of the ore from the Ni-Wot Co's mine, as produced in their 50-stamp mill, is \$7 to \$10 per ton, treated at an expense not exceeding \$5 per ton. The average of all assays has been \$35 per ton, and 25 to 33 per cent. copper with a trace of silver. The company are working their mill to its full capacity. Fifty tons is the amount of ore treated daily—working night and day. During the past winter the average was only 25 tons.

Letter from Granite District: Work in the Yankee Blade has been suspended for a short time. Messrs. Hayden & Royce will be ready to run by the first of July. Altogether the prospects of Granite Dis-

trict are very good for the coming season. At Cash creek there is a good head of water.

Central City Herald, May 20th: The old Eagle mill has been regenerated, and has now 20 stamps running on ore from the Bates lode. Barrett & Co. have their engine on the Winnebago lode, in position and running. Sanderson & Co. have reached a depth of 120 feet on the discovery of the Bates or Hunter lode, and have erected a whim. At the present depth the crevice gives a showing of a two feet vein, solid ore. An assay of Equator ore, made the other day, gave 3,950 ozs. per ton.

Clear Creek correspondence, dated Idaho, May 16: Gulch mining for the season has started. Every one is pitching in, or preparing to do so at once. Some very good claims have been opened up and very rich pay has been struck, but there is unfortunately great lack of capital among individual miners. On Chicago Creek several rich claims have been opened; from one owned by a party of Frenchmen and a veteran gulcher, named Silvertooth, an average of 23 ozs. a week has been taken out. In the last week in April 13½ ozs. were sluiced in three days, and it now pays steady at the rate of \$15 per day to the hand. W. L. Campbell & Co. start in next week at the upper end of the Illinois Bar. Lowe & Fitzpatrick are working with a large derrick, and will soon reach bed rock. Further down Dick Skinner and Esus Kris, a Norwegian, have been sinking a shaft, and were proceeding to crib it from the bottom when the whole thing caved in. They are determined to go to the bed rock and drift. It gives good prospect. Some of the colored folks have been sinking at the lower end of Grass Valley Bar, and have a prospect of rich pay. John Hardy and others have reached the bed rock, but have not struck rich pay yet; on Friday it showed from two to three cents to the pan.

While at Clear Creek the other day, we took a pan of dirt from the claim of Wright, Clearfield & Co. from which we obtained one dollar in gold. The paystreak is wide, and the bed rock a little over six feet from the surface. The company cleaned up 13 ozs. from 4½ days' sluicing. Many other companies have struck rich pay. One company of men averaged \$60 each for last week's work, another took out 8 ozs.

Register, May 21st: The Consolidated ditch is uncompleted. The Mendell mill, a 12-stamper, is crushing surface ore from the Greenlee lode, Eureka cañon. The quartz and dirt yield about 4 ozs. per cord. Tascher & Co. expect to commence crushing from the Great Republic, on Quartz Hill in the course of the week. The Kimber mill is crushing ore from the Clark-Gardener property. The yield ranges from 5 to 8 ozs. per cord. This mill has not been idle in twelve months. Mr. Stevens has an arastra in Eureka, which yield about \$160 per week, from surface ores mined in company from the Grey Eagle. Fred. Conant is running the Holman mill on Bates ore. He is taking out fine ore from the Adaline.

John B. & Wm. Church, of Chicago, are developing a series of veins in Elkhorn Gulch. Several shafts are down, and the prospects are highly encouraging.

Letter from Sugar Loaf: Jas. S. Wilson, on Four-Mile Creek, has run an adit 220 ft. He will soon test his ore in arastras. The frame of the mill for Wright, Crosby & Co. to reduce Hoosier ore, is already up. Parties washing in the creek near here are getting good pay.

An assay of Maria ore, Enterprise District, lately gave, at the Territorial assay office, \$1,423 silver, and \$62 gold, per ton.

Georgetown Miner, May 7th: Work on the Huakadora lode has been suspended for the present. Allen Lewis and Wm. Cooper are developing a good looking vein on Silver Mountain. Work on the Equator lode has been resumed, and some very rich ore is being raised. We understand that they are raising from the Magnet lode, half a ton of first class ore daily. The Lily lode is yielding some very rich galena and sulphuret ore, carrying some ruhy silver. We saw, on Monday evening last, a button of silver weighing within a few grains of six ounces, from about three pounds of ore from the C. J. Goss lode.

Active operations have been commenced on the Herkimer lode. The adit is now in 36 ft. The Alex. Hamilton is in 50 ft., with a 10-foot crevice. On Brown Mountain, the Terrible lode tunnel progresses slowly. Work at the Brown lode is going on well.

At Mott City mining affairs are improving. Mr. Snyder has two arastras at work on quartz from the Allro lode; 200 tons of quartz is now ready for treatment. Wm. Brown, agent for the Lincoln Co., will start up four arastras immediately. The tunnel is in 250 ft. The Boston & Chicago

Co. have suspended operations for the present. . . . Reed's mill is rapidly approaching completion.

DACOTAH.

Sweetwater Mines, South Pass City, May 19th: On the Buckeye ledge, near Atlantic City, a cross cut has been run, disclosing the width of the vein to be 20 ft. The rock shows free gold in abundance.

Temple & Co's placer claim in Beaver Gulch bids fair to turn out well. We were shown a little over \$32 of fine dust, the proceeds of ten hours' washing by three hands last week.

Fairfield, Bronson and Marshall have commenced the erection of a first-class astrak on Willow Creek, to be run by water power, and intend to have it finished in 20 days.

Territorial Enterprise, June 4th: We have received a long letter from Mr. W. Dooley, now in the Sweetwater mines, dated South Pass City, May 20th: The writer is quite favorably impressed with the appearance of the country. The Cereso Co. cleaned up last Friday, after a run of a few days, \$40 to the man. The Cereso is the best gulch that has as yet been found, though there are others that will pay for working. Several ravines which afford water the year round will pay from \$4 to \$5 per day. "Swairengen, an experienced prospector, has just arrived from Oregon Gulch, 16 miles north, and reports from five to six cents to the pan. Col. Tozer has commenced the survey of a ditch and within two months will be able to furnish all the water they want." He says the quartz lead are as good as he has ever seen, so far as prospected. The deepest shaft in the country (Miser's Delight) is but 35 ft. deep.

The Silver Bend Reporter gives part of a letter dated South Pass, May 7th, from Ned Leitz. "A party started to-day for a place 15 miles distant which report says abounds in placer diggings that will pay from \$6 to \$15 per day; but I don't believe there are any mines in the region that will yield \$5 per day. There are some quartz ledges here that look well, but it will take a couple of years to prove them. I think the country can be bought out cheap next fall."

IDAHO.

Lewiston Journal, May 23d: Warren's is filling up fast with miners, and things generally begin to assume a cheerful business-like appearance. Quite a number of persons were on their way there, and several trains.

The miners at Pierce City are reported busily at work. A large new ditch is to be brought in.

Idaho City World, May 30th: The latest from Deadwood Basin is that water is plenty, and the miners are all busy at work. The claims generally pay richly—some big.

The Dutch Co. say instead of their making \$25 per day, as published in this paper, they have been and are still making an average of \$100 per day.

Only one sale has taken place in the Basin. The one-fourth share of 1,200 ft. in Dutch Gulch sold a few days ago for \$1,000.

MONTANA.

Helena Post, May 22d: The mill at Sterling, belonging to the N. Y. & M. M. & D. Co., is running with success upon rock from one of Mr. Melby's ledges. Mr. M. says the rock yields an average of \$40 to the ton, and that he crushes about fifteen tons per day. No other mills are running and no ledges are being developed.

The supply of water in Alder is increasing, and nearly all miners having claims in the gulch have commenced work once more. The water it is thought will hold out until July, and perhaps a little longer. The Virginia water ditch is still empty.

Mr. Everett, who purchased the Green Campbell lode for a Cleveland company, is on his way to the Territory with a mill to erect on the property. During the winter he has had men at work who now have out some 3,000 tons of quartz.

The survey of the proposed ditch to bring water from the Madison, will probably be completed next week.

J. W. Hyde's Canadian Gulch Company cleaned up as the result of one week's run, \$600. The company has scarcely got well at work yet.

We learn from a private source that the Midas Mining Company has failed, and that the mill and property at Sterling are being disposed of. The liabilities are reported to be heavy, both here and in the States.

The miners have "struck it" to the tune of one dollar to the pan, on bed rock in the third or lower drain at Lincoln's Gulch. In the second drain, which is now being run five feet down in bed rock, \$500 was cleaned up recently by five men in twenty-four hours' run.

One of the most extensive ditches in the Territory is now being constructed in Deer

Lodge County, furnishing water to the Pioneer, Piko's Peak and Kyle's gulch mines, and will bring 3,000 inches of water from Rock Creek. Its estimated cost is \$60,000, and it is proposed to have it completed by the first of June.

There are some 400 men employed in and about Reynolds City, many doing well. Prominent among the mining operations are those being prosecuted by means of bed rock dunes, eight or nine of which are in operation in Elk Creek, and some of which are paying enormously.

The Cole-Sounders Mining Co. formed last winter in St. Louis for quartz mining in this Territory, have a mill on the way which will arrive here within 30 days.

Virginia items: Work is still steadily progressing on the Park lode at Highland. A shaft seven by eight feet has been sunk on Discovery claim to the depth of 50 feet, and a drift run across the ledge from the bottom, proving the crevice to be over 30 feet. The rock prospects well. . . . The owners of the Ballarat lode are running a tunnel to tap the ledge and are already in 300 feet. . . . The quartz mill of Hendry & Co. in Rochester Gulch, will be in running order in a few weeks.

From the *Democrat* we learn that the Virginia Water Ditch Company have set men at work on a ditch to bring water from the lakes near Summit into their flumes.

The *Independent* says that a train of 20 wagons had passed through Deer Lodge with the new mill for the Thomas lode at Cable. . . . The prospectors at Phillipsburg are devoting their attention to the discovery of gold ledges, believing that they can be made more immediately profitable than silver lodes, from the fact that there is but little machinery in the country for working the letter.

NEVADA.

Esmeralda.

Aurora Union, May 30th: Pine Grove items: Thos. Price has purchased a portion of the Mt. View ledge and has gone to work taking out ore which, though a low grade, is abundant. The Pioneer mill starts up on this ore on Monday next, and if it comes up to expectations the mine will keep the mill constantly employed. . . . The new mill of Toombs & Abrahams was started up on Wednesday evening last, and works admirably. The machinery and building are arranged with an eye to convenience. They have near 500 tons of ore on the dump calculated to yield \$60 per ton. . . . Mr. Bourn, the Supt. of the Midas mine, designs prospecting on the lower level, and if a sufficient body of sulphuret ore can be found, the company will proceed immediately to the erection of a mill. . . . The Wheeler mine is yet lying idle, but the probabilities are that some disposition will be made of it before long. . . . There are quite a number of claims being prospected in and near the Grove.

Humboldt.

Register, June 6th: Mr. Smith has resumed work on the Alpha mine. He has out a large quantity of good ore, and after some 60 days of further prospecting, will commence the erection of a 10-stamp mill. This will be placed in Echo Cañon, and will be conveniently situated in regard to the mine.

Dr. Fred. Hutchins has a ledge eight feet wide that will pay \$30 per ton in silver from wall to wall. His mine is situated on the west slope of the East Range, near the valley, and about 22 miles from Unionville. It is admirably situated for wood, water and easy approach. He, in company with John Twiss, have been industriously at work sinking a shaft on the ledge for some time.

Reese River.

Silver Bend Reporter, May 30th: County Surveyor Tagliabue brings intelligence of the discovery of rich gold bearing ledges in Mammoth district, which at present absorb the attention of the entire population of that section. Mr. Tagliabue brought some exceedingly rich specimens of gold-bearing quartz. The lodes are situated about three miles due west of the town. They are of good size, and all show gold in abundance. The specimens shown us were very rich in gold.

Last week Mr. John H. Boalt, Chris. Bauer, and others, spent several days in examining the mining property of the Ophir Co. in Manhattan district. They all express favorable opinions of its worth. It is very probable that the company will commence operations there this fall. A small lot of the ore from the Ophir, amounting to 2,500 lbs., was recently sent to Austin for reduction, and yielded at the rate of \$232.54 of silver per ton.

Cammack is now overhauling and placing in complete order the Pioneer mill at Lone, and it will soon be set at work under the direction of competent managers.

In Hot Creek district, Gillett & Clark have reached a depth upon the Wyoming,

near the mouth of Rattlesnake Cañon, of about 40 ft. and are working night and day. They now have over 100 tons of good milling ore ready for reduction. About one mile north of Rattlesnake Cañon the Silver Mountain Co. is sinking upon the Hector lode, which exhibits rich ore, and the prospects are exceedingly favorable. The small 10-stamp mill in Hot Creek Cañon will probably be running within 10 days, and a telegram has been received from the East stating that the Old Dominion Co. would soon rebuild their mill.

From Palmetto district we have the most encouraging reports. Upon the Silver Champion lode two inclines have been sunk to the depth of about 310 ft. each. These shafts are 110 ft. apart, and will be connected by levels. Upon the Kentucky claim a force of workmen is constantly engaged. . . . A 12-stamp mill is in course of erection by the New York & Silver Peak Co. The machinery is already upon the ground; and it will be in operation by the 1st of August.

T. F. White, Supt. of the Northumberland Co., has purchased the 10-stamp mill at Indian Springs, San Antonio district, known formerly as Hunt's mill, and is now tearing it down for the purpose of removal and reerection at Northumberland.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial Enterprise, June 3d: Workmen are engaged in cutting down the big chimney at the Gould & Curry mill. The chimney is 150 feet high, about 8 ft. by 10 at the base, and 4 ft. square at the top. It contains 180,000 bricks.

Same of 4th: A quantity of ore is now being taken out at the Sutor mine, situated on the Comstock range on the north side of Cedar Hill, for test by mill process. It will be worked at the Ogden mill. The deposit is found to grow both wider and richer as it is followed down.

5th: The Alpha Co. are thoroughly overhauling all the machinery about their hoisting works, and will be ready to resume operations in a couple of weeks. The Imperial-Empire shaft has drained all the water from the underground works.

The Empire and Imperial Cos. are at last fairly at work in their drifts and have made some progress in the vein, finding good ore in small streaks. All the indications of shortly coming upon large and valuable deposits of ore are considered to be good.

6th: A large deposit of excellent ore has lately been struck in the Rogers mine, Flowery District. The ore is the richest ever found in the mine, and assays as high as \$1,500 per ton, but is somewhat intractable.

The United States Co. are now down 70 feet with their large shaft. The rock continues soft and much mixed with clay and streaks of quartz. It is being substantially timbered as the work progresses.

The receipts of the Crown Point Co. for May were \$168,000; expenditures, 77,000.

The annual report of the Bacon M. & M. Co., shows that from June 1, 1867, to May 15, 1868, there was mined and delivered to the mills 12,123 tons of ore, yielding \$262,034 in bullion, and showing an average per ton of \$21.61½. This ore was principally top-rock. The amount of ore on hand May 15, was 5,563 tons—1,000 at the dump, and 4,563 tons at the Pinte mill.

Trespass, June 6th: In the Ophir, the shaft is down 239 ft. in easier ground, and more water. . . . In Crown Point, the shaft is now down 55 ft. toward another station, in ground of easy quality to sink in, although not as good as was encountered last week.

The south drift, 800 ft. station, is now in 126 ft. developing the east body, and showing excellent ore. The upper portions of the mine are looking as well as usual. About 4 tons of ore, which will mill in the vicinity of \$40, are being extracted daily. The net profits for May were \$87,000, and the usual dividend will be declared. . . . In the Chollar-Potosi about 100 tons of ore are extracted daily, nearly all of which is taken from the Blue Wing station, which pays the expenses attendant upon prospecting, etc. From the old cave ground considerable good ore is being extracted. The timbers for the 1,100 feet station are being placed, and a drift will be started early next week. . . . In Empire mill the west drift from the new shaft has been in barren quartz, but within two or three days has developed spots of fine ore. Last evening a new vein of quartz and ore was developed. . . . In the Gould & Curry the Bonner shaft is being sunk as rapidly as possible. Last night it was 964 ft. in depth, about 1½ feet per day being accomplished. Considerable water is encountered, and all four pumps are in constant operation. Next week about 50 tons of ore daily will be taken from the old mine.

The tailing mill belonging to the company is at work on the slum from the old reservoirs. . . . In Halo & Norcross the face of the drift at the lowest working station is now supposed to be about 43 ft. from the ledge. At the lowest station, where the cave occurred, but little progress has been made. . . . In Imperial the machinery at the new shaft works well, and for seven days bailing and hoisting has been uninterrupted. . . . In the Occidental a contract for running a drift and sinking a shaft has been advertised. The mine at the second station has been yielding good ore. The first level—old incline—remains unchanged. . . . In Kentuck the working levels are looking as well as usual, and are yielding excellent ore. The shaft is in easy ground and being rapidly sunk towards a new level. . . . In Savage the upper stations of the mine are yielding as well as usual. Between the 4th and 5th stations the ore has improved unexpectedly, and is widening as raised on. At this point there has been extracted considerable first-class ore. At the 5th station, the face of the drift north does not show any ore. The 6th station has been opened, and a drift is being pushed westward. . . . In Yellow Jacket the 750 ft. level of the mine exhibits marked improvement. It is said that a drift east of north from the 810 ft. level has been commenced, and is now in about 27 ft.

The following is the statement of the amount of bullion dispatched during the past week: From the office of Wells, Fargo & Co., in this city, 6,979 lbs. of assayed bullion, valued at \$239,661.98; from Gold Hill, 2,293 lbs., valued at \$77,389.84.

NEW MEXICO.

Santa Fe New Mexican, May 19th: Parties from the Pecos state that some miners prospecting that river and tributaries have taken out considerable gold.

By private advices from Rio Arriba County we learn that some valuable gold, silver and copper leads have been taken up under the auspices of Gen. Heath, who visited that section.

Elizabethtown letter: That gold exists here in paying quantities over a large area, cannot be doubted. One company sold last evening gold dust to the amount of \$850, and during the past week over \$2,500 in gold dust have been sold. Work has been commenced in earnest on the ditch from Red River.

OREGON.

Jacksonville Reville, May 30th: Milling for the Timber Gulch ledge was suspended for a time last Monday, after a run of 206 tons; it having been ascertained that the quartz could be worked more profitably by assorting it. Meanwhile the mill has been kept running on rock from other ledges. Three tons from Ives' mine in Sterling yielded \$50 per ton. Twenty tons from the Rising Star, yielded \$9 per ton. This ledge is on the South Fork of Jackson Creek, three miles from town. We understand that work will be resumed at once. The mill is now at work on ore from the Blue ledge above Kanaka Flat.

Messrs. Brown, Parsons and Brooks are reopening the old mine on Richardson ledge with the view of testing it by mill process. Neuber and Boushey will soon commence prospecting in the Bauer ledge. The Howard and Payne ledge on Brush Creek, is now open, but means are wanting to enable the owners to give it a practical test.

WASHINGTON.

Olympia Transcript: From a gentleman from Chehalis Point, we learn that one company, at least, is making money mining. Five men worked five days and cleaned up a little more than \$100, at \$16 per ounce of dust. At this rate the men made nearly five dollars per day to the man. They work with sluices, raising the water with a hydraulic.

AN AIR LINE.—The American Central Railway, a projected air line road from New York to Omaha, has, we learn, finally assumed a definite shape, and the enterprise is to be pushed through as fast as money in abundance can do it. The entire airline will be made by a consolidation of the Allentown road to Harrisburgh, the Pennsylvania Central to Pittsburgh, the Fort Wayne and Chicago to Fort Wayne, and the American Central to Omaha. The company was fully organized at Fort Wayne, Indiana, on the 5th inst., and the road will be one of the most important now building in the United States. Its length is to be five hundred and eighty-five miles, and by its directness will shorten the route now traversed between this city and Omaha by one hundred and thirty-six miles. When the Pacific railway is completed this new road will constitute with it a grand trunk line from ocean to ocean.—*Scientific American*, May 9.

Mining and Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

C. W. M. SMITH. W. B. EWER. A. T. DEWEY.
DEWEY & CO., Publishers.

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Waiters should be cautious about addressing correspondence relating to the business or interests of a firm to an individual member thereof, whose absence at the time might cause delay.

Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.
Mr. C. T. Roney is our duly authorized agent for Sacramento County. Nov. 29, 1867.
Dr. L. C. Yates is our duly authorized traveling agent for July 6, 1867.
Mr. A. B. Butler is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, June 13, 1868.

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Notices to Correspondents.

TRACKS.—The term tramway, as applied to railways, originated in the circumstance that the first iron rails laid down for the purpose of facilitating locomotion, were designed and constructed under the superintendence of a person named Outram—hence the term tram-roads from the employment of the abbreviated name of the originator, by using only the last syllable of the name. These roads were first constructed in Derbyshire, England. The original tram-roads were constructed very differently from those now used. The track on which the locomotive wheels moved was a flat piece of iron about three inches wide, with an inner flange about two inches high. A transverse section would form something like that of the Roman letter L, when laid on its longer side thus, L; a transverse section of the road would appear as follows: L..... The form of rail now in use was first adopted at the Manchester and Liverpool Railroad, 31 miles in length, at the suggestion of the late Geo. Stephenson, the chief engineer; which road was formally opened for traffic in the month of September, 1830. A locomotive, the Northumberland, headed the inaugural procession, drawing a large car and train of carriages. In the car was the late Duke of Wellington and other celebrities; among others, the late William Huskisson, a celebrated financial legislator, and at the time one of the parliamentary representatives of Liverpool. This gentleman unfortunately lost his life through an accident, which occurred to him on this occasion, in consequence of his accidentally coming into collision with the "Rocket," a locomotive that a few months previous had obtained the prize of \$2,500 for the locomotive that would draw a certain weight at the rate of ten miles per hour on the said railway. The accident occurred about midway between the termini, at a watering station, during a stoppage made for the purpose of affording an opportunity to the invited to inspect some particular features of this part of the line.

ORO FINE.—In a small way, such as estimating by the grain, the value of fine or pure gold cannot be approximated more closely, without going into very minute fractions, than by estimating the value of a grain of pure gold at four cents per grain, which would be equivalent to \$19.20 per oz. troy. Pure gold, however, in San Francisco, is worth more than \$20 per oz., and in Europe is worth \$21 per oz., varying occasionally from 25 to 50 cents above or below this sum. It is more profitable to remit unrefined than refined gold bars.

TYRO.—The three most useful fluxes for blow-pipe analyses are, the triple phosphate of soda and ammonia, carbonate of ammonia, and borax.

Canvassing Agents wanted at this office.

The New Mineral—Mariposite.

Mr. Orlando Jennings sends us, from Al-leghany, Sierra County, an interesting mineral specimen, which, he writes, is found in almost all the quartz lodes in that part of Sierra County, generally forming a strata along the hanging wall near the white quartz, and at times taking the place of it. Our correspondent wishes to know something of the nature of the mineral, especially of the colored (greenish) portion of it. The answer to the query comes properly under the head of our usual notices to correspondents; but its unusual interest induces us to make fuller mention of it as follows:

The green-spotted mineral does not, as truly stated by you, contain the slightest trace of copper; yet the best and most experienced mineralogists and metallurgists have been deceived by its appearance. It is found in the vicinity of the "mother vein," and not unfrequently in considerable quantities, especially when in contiguity to magnesian rocks. We have a specimen in our possession which came from Lower California, several tons of which were once sent to this city for copper. This mineral probably occurs at other places than those enumerated, as well as in your vicinity. The origin of this curious mineral is at present unexplained by the most scientific; in fact, all to whom we have shown the specimen which you sent us, and who were supposed to be likely to be acquainted with the mineral, state that they never saw anything similar in any other part of the world than on this coast, and then only in localities similar to that which we have described.

Some who have been much accustomed to assaying minerals, in such districts, state that that or a similar mineral, sometimes forms and is found in their slags, occasionally in quite large buttons, but more frequently presenting the appearance of dispersed, small turquois.

The first person who has correctly described the subject, is Professor Silliman, who, in a communication to the California Academy of Sciences, in December last, gave the mineral the provisional name of *Mariposite*. The Professor says:

We find at Mariposa, in the Josephine and Pine Tree Mines, at Peñon Blanco, Maxwell Creek, Blue Gulch, Quartz Mountain, Silver's, Whiskey Hill, Rawhide, Chapavele Hill, Carson Hill, Angels, and Placerville—at all which places I have examined the mother lode with more or less care—a peculiar light apple-green mineral, occurring in scales, associated with iron pyrites in small and brilliant pentagonal dodecahedrons and implanted in a gangue of dolomite mingled with quartz. The dolomite is of the variety known as ankerite, and by its decomposition, which seems hastened by the oxidation of the associated pyrites, gives origin to those highly characteristic masses of brown and reddish-yellow iron gossan which form the characteristic feature of the outcroppings of those portions of the mother vein just enumerated. These gossans always retain the bright green mineral before alluded to unchanged, as also cellular quartz which discloses in its rhombic cavities the form of the decomposed crystals of dolomite or ankerite whose removal has left the vacant spaces. Before decomposition, this triple carbonate of lime, magnesia and iron is brilliantly white, and its real chemical character would never be suspected.

The green mineral, so far as I can ascertain, has never been described, although it has often been noticed. It has been called by some *nickel gymnite*, and I have once distinguished it by this name in a mining report. But this is a misnomer which I take this occasion to correct; nickel gymnite of Gent, found at Texas, Penn., is a hydrous silicate of magnesia, lime and nickel. The species so characteristic of certain portions of the mother vein is anhydrous, and contains no nickel.

Mariposite (Provisional Name).—Before the blowpipe it yields evidence of the presence of the protoxides of iron, lime, magnesia and potassium; of the sesquioxides of chromium and aluminum with carbonic, silicic, and sulphuric acids. The oxide of manganese and sulphuric acid exist only as traces. The mineral is probably

new, and must be referred to the mica section of an hydrous silicate. Should it, on a careful chemical examination, prove to be new, I would suggest the name *Mariposite* as an appropriate name for it, as it was on the Mariposa estate that it first attracted my attention, and where it exists in great abundance.

This species, which is so characteristic of the mother vein, in connection with magnesian or chloritic rocks, occurs nowhere so far as I have observed in this vein, when it is inclosed in argillites or syenites.

Pacific Mail Steamship Company.

It is a good will that speaks well of "the bridge that takes you safe over." Having recently made a voyage from New York on the magnificent steamers of the above named line, we are constrained to say in truth and justice, we believe there is no steamship company in the world who practice stricter rules for the health, security, and regular dispatch of their passengers, than the P. M. S. S. Co.

Persons who have not made the passage by this line within the past few years, have no adequate idea of the great improvements introduced in the construction and management of the steamers, and the additional fare and comforts provided.

We left New York May 16th, on the Ocean Queen. Although considered comparatively a "slow coach," she proved to be a remarkably steady, smooth-running boat, making for her best daily run, as reported, 291 miles. Capt. King seemed "all officer," giving constant attention to duty. Shackelford, first officer, is a vigilant mate. Mr. Mitchell, purser, is one of the oldest, and we should say, best on the route.

Capt. Lapidge, of the Golden City, "on this side" of the Isthmus, is a youthful-looking, vigilant officer. Although small of stature, he is of long and high standing in the line. He is a well-esteemed citizen of San Francisco, and takes "no stimulants aboard." The absence of "brandy-smashing," is one of the noticeable improvements among the officers of the line. Mr. Knight, purser, evidently a capable, fair-minded man, reads the "Episcopal service" on Sunday with becoming grace. With the chief stewards and other officers of the ships, we have no fault to find from our experience.

Great satisfaction is realized during the passage by this line, from the knowledge that the company insures its own vessels and freight; that the most experienced officers are employed; that the ships are thoroughly constructed for the trade and kept in good order; and the affairs of the company managed—from long experience—with wholesome regularity and prudence.

THE MINING COMMISSIONER.—R. W. Raymond, Esq., Mining Commissioner for the Pacific States, left this city on Thursday last for the interior. He will pass north, through Tuolumne, Calaveras, Amador and El Dorado counties. From thence he will go to Grass Valley, where he will arrive during the latter part of June. He will afterwards visit Virginia and Eastern Nevada, returning via Humboldt County to Idaho.

Mr. Raymond took occasion, in his address before the Academy of Sciences, to explain that he did not intend to go everywhere, and could not expect to "do justice" to the different districts. His attention being directed this summer to certain points, he will choose his routes and pauses with reference to the particular matters he desires to investigate, and not with reference to the relative productiveness or prospective value of different districts.

HAYES' HOOK AND LADDER TRUCK was exhibited on Thursday evening in front of the City Hall. This is a most useful invention, and should find a place in every city in the Union. Another and more public exhibition will be made of it in a few days.

More Petroleum Experiments.

By successive steps we appear to be gradually bringing to a successful issue the problems for burning petroleum for steam fuel. The apparent absolute necessity of a more condensed fuel for our ocean steamers, as well as the desirability of a more economic generation of steam for all purposes, draws a large share of the inventive genius of the country towards the utilization, in that direction, of the heavy coal oils which are found in such great abundance in various parts of the land. We have from time to time noted the progress which has been made in this direction, and shall continue to record similar experiments as they may come to our notice.

The failure of the late trials of the Foote apparatus, on the *Amelia*, have in no wise discouraged either our inventors or capitalists. There are imperfections in the device there employed, which have thus far proved insurmountable. The interest appears to have now passed from that to the plan patented by Col. White, of this city, to which we have frequently referred, and on which the Colonel has been almost constantly employed for many months. He has now brought his invention to such perfection as to look very much like positive success; as it has been in constant use for nearly two weeks, making all the steam employed in driving the machinery of the *Ætna Foundry* on Fremont street, requiring less attention than coal, and apparently involving less expense. In this latter particular, a careful record is being kept so as to determine accurately the comparative value of fuel consumed, as between oil and coal. The great trouble of the accumulation of carbon in the retorts and burners appears to have been entirely obviated.

Still another party, whose name we are not yet allowed to use, has been some time experimenting on the English plan of "atomizing" the oil, or injecting it into the furnace in the form of an exceedingly fine spray. This is accomplished by means of a steam jet, something on the plan of Giffard's injector. In the use of this method all trouble arising from the accumulation of free carbon is absolutely avoided; the only question being the perfect and economic combustion of the oil. We understand that experiments in the use of this principle, with the apparatus invented in this city, have been thus far so successful as to secure the utmost confidence in its success on the part of quite a number of our best mechanics and engineers, and that all the funds necessary for its fullest practical trial have been freely proffered. It will soon be tried on a large scale, upon both a marine and land engine. A public exhibition of its working will be given in a few days, when experts will have an opportunity to compare this mode of burning petroleum with that of its conversion into gases, as required by the devices of Cole, Foote and White. A patent for the spray burner has been applied for through the MINING AND SCIENTIFIC PRESS PATENT AGENCY.

CONVENIENT FOR STOCK-BROKERS.—The New York brokers are adopting an ingenious telegraphing apparatus, which keeps each one constantly posted in the prices of stocks without the necessity of leaving his office. The instrument may be placed in each stock-broker's office, requires no operator, and yet sends out a printed slip in each office simultaneously with a slip of like character in all the others with which the telegraph line may be connected. Any changes in prices which may occur in the Stock Board, are thereby instantly made known.

We are indebted to S. P. Sanders, artist, for a photograph of the new Court-House of Santa Clara County, at San José. The building is of stone and brick, and evidently the best court-house in the State. Its architectural design, by Mr. Goodrich, of San José, is superior.

CENTRAL PACIFIC RAILROAD.—President Stanford is now in Salt Lake City, with full power to do everything possible and proper in the city of the Saints to hurry up the work on that end of the route. It is the determination of this company to reach Salt Lake before the Union Central, if possible; and no mortal energy will be spared to accomplish that purpose, which is fully as important to the people of California, generally, as it is to the stockholders of the road. The policy of the Union Central in securing the labor element at Salt Lake to hurry up the work at its eastern terminus, will doubtless be followed by the Central Pacific, in employing to the same end all the surplus labor that can be found in that region.

Work upon this great enterprise is being pushed with increasing energy, as the two roads approach each other. The extraordinary accomplishments of the past bid fair to be eclipsed by the efforts of the future. It is said that railroad work will be done this summer which will astonish the country, notwithstanding the wonderful efforts in this direction with which we are already familiar. In addition to almost weekly shipments of iron from New York, *via* Cape Horn, the company has now made arrangements to ship *via* Isthmus, and will forward some 5,000 tons by this expensive route, during the present summer, in order to secure a full supply of that material to keep pace with the rapid progress of grading. It is said by a correspondent of the *Bulletin*, from whose letter we glean the above, that the managers are even talking of the possibility of being able to go from Oakland to New York by rail as early as the 4th of July, 1869. If such a thing can be done, the public may well put up with high rates of fare and freight for a year or two longer in aid of such an important consummation. A thousand good words and wishes for this noble work—this most extraordinary monument of human enterprise and energy.

SILK PRODUCTION.—I. N. Hoag, Secretary of the State Agricultural Society, has a large plantation of mulberry trees upon his ranch in Yolo county, just opposite Sacramento, where he is making extensive preparations for silk-worm feeding this summer. He has a cocoonery 50 feet square by 18 high, properly fitted up for feeding, with 9,000 square feet of feeding space. In connection with this cocoonery he has a well arranged breeding or hatching room. These accommodations are sufficient for making over two millions of cocoons. He has also another building 30 by 40 feet, which he can call into use if necessary. The breeding room is properly fitted up with means for artificial heating, when necessary. He has already commenced hatching and feeding, and at the present time, has about 800,000 worms in fine condition. He hopes to feed three million during the summer. That number of cocoons will be a very good product for one silk-grower; and if two or three others will start in with a like energy, we may hope soon to see silk-growing take an important position among the industrial interests of the State.

Canvassing Agents wanted at this office.

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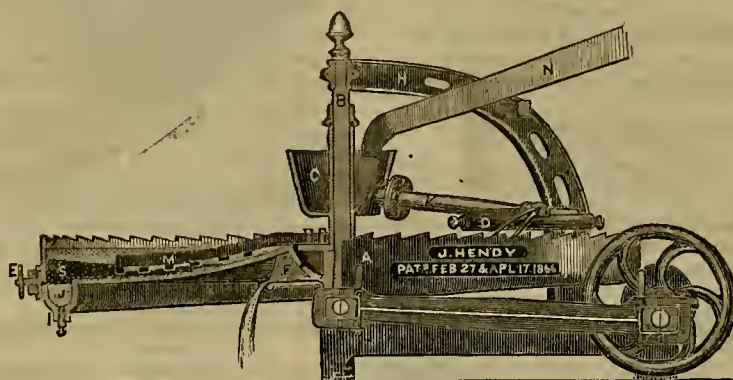
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FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators of pretended merit. **THEY ARE WARRANTED TO WORK SATISFACTORILY.**

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
First—In setting up, set the pan, A, level by the inner rim, near its center.
Second—While in operation, keep the Pan, A, about half full of sulphurets. [See Figure 2, marked S.]
Third—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
Fourth—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (8 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (8 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO., Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M & M. CO. (3 Concentrators) Hunter's Valley, Mariposa County.	
PLYMOUTH ROCK MILL CO. (2 Concentrators).....	Calaveras County.
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
MOREY & SPERRY (1 Concentrator).....	New York.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.
JAMES HENTY & CO. (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.

J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets.

Respectfully, etc.

W. H. RODDA, Supt.

SUPERINTENDENT'S OFFICE, GOULD & CURRY S. M. Co., }
VIRGINIA CITY, Nev., Sept. 17, 1867. }

JOSHUA HENDY, Esq., San Francisco:—Dear Sir:—According to the terms under which I secured from you four (4) of your Concentrators, namely—that they were to be paid for only after a thorough trial had demonstrated their value—I desire to inform you that I have tried them, and have found them to work very satisfactorily, and that they will now be accepted by the Company. You will please present the bill for said Concentrators, say \$1,200, at the office of the Gould & Curry Company in San Francisco. Yours, very truly,

LOUIS JANIN, Jr.

The bill was presented in accordance with the above request, and duly paid.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented February 27th and April 17th, 1866."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,

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April, 1868.

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How Concentrated;
And How Worked;
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ors, and employers of all descriptions of labor, are

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19v16-3m H. C. BENNETT, Secretary.

Niagara.

This stupendous cataract, like everything
 else, is constantly changing. A Hyatt, in
 an article entitled "Rock Ruins," contrib-
 uted to the *American Naturalist* for April,
 says:

The recession of the present falls is an
 established fact. Father Hennepin, one of
 the early French explorers, described and
 figured Niagara as early as 1678. Then it
 had three distinct parts instead of two, as
 at present. On the Canada side a tabular
 rock of great size extended out interrupting
 and turning a portion of the overflow in an
 easterly direction, making a third fall at
 right angles, but continuous with the horse-
 shoe. About seventy years afterwards, a
 Danish naturalist, Kalm, records the disap-
 pearance of this rock, and describes the fall
 as having about the same general outline as
 at present. His sketch, however, does not
 differ materially from Father Hennepin's,
 except in the absence of the third fall.
 Parts of Table Rock fell successively in
 1818, 1828, and 1829, and Kalm speaks of
 the descent of portions of this rock, which
 extended under the water previous to his
 visit in 1750.

The future of the cataract may be read in
 the structure of the rocks, as well as its
 past. Prof. Hall, who has studied more
 carefully than any other geologist, predicts
 that Niagara is slowly but surely destroy-
 ing itself. Thousands of years hence and
 the cataract will have eaten its way back
 until the solid limestone layers, which are
 now on its verge, will be at its base. Here
 it will probably remain for a long time al-
 most stationary. The lower portion being
 as hard as the upper, will not be eaten out
 into caves and hollows as at present, but,
 being less exposed, will give way even more
 slowly than the upper limestones.

According to the estimate of Sir Charles
 Lyell, about 35,000 years ago the falls were
 at Lewiston. Now they are seven miles
 away, and have yet two miles to traverse,
 each step harder and more difficult as the
 shale becomes thinner, before they reach
 the point, where, should they preserve their
 present structure, they will be not over 100
 feet high. Following out Sir Charles Lyell's
 estimate, this would take 10,000 years, even
 if no allowance was made for the gradual
 retardation caused by the disappearance of
 the shale. Although these calculations are
 based upon the observed rate of retrogres-
 sion of the falls, they can only be very
 rough approximations, until sufficient time
 has elapsed for other observations to be
 made and compared with the monuments
 erected by Prof. Hall in 1842. They are,
 however, sufficiently close and reliable to
 show that Niagara was not carved out in a
 day, nor yet in a thousand years; but that
 for tens of thousands of years the steady rush
 of the river has ground the rocks to pow-
 der, and swept away, piece by piece, the
 solid layers, until the gorge it has cut is
 now seven miles long, from two to three
 hundred and fifty feet deep, and eight to
 twenty-four hundred feet wide at the top.

IRON FOR PEAR TREES.—"H," of East
 Woodstock, Conn., sends the Massachusetts
Ploughman his experience. After several
 years careful tending, a fine Madeline pear
 tree was about to be abandoned in disgust,—
 the fruit all dropping prematurely. But
 chancing to learn that some remarkable
 fine pears were grown on a tree which took
 the sweepings of a blacksmith's shop, he
 took the hint, and distributed a bushel of
 filings and turnings from a machine shop
 about his tree, stirring up the ground well.
 The next year he got a peck of fruit;—but
 the second year the tree was literally loaded
 with as nice Madelines as ever were grown.
 The tree has continued to give full crops
 ever since.

"I have," he says, "in the same yard,
 two old trees grafted with the Bartlett,
 which had borne but very few inferior pears
 until after I applied the iron, when they
 gave me full crops of fine fruit. I have
 been often questioned as to how I ripened
 my pears to give them such a beautiful
 golden color. I always tell them to use
 iron about their trees."

"BEAUTIFUL BIRD."—A new machine for
 navigating the air, invented by a Scotch-
 man, will be brought out under the auspices
 of the British Aeronautic Society. It is a
 sort of bird, with a body fifteen feet in
 length, and wings stretching out to the
 width of thirty-five feet. A tail reaches out
 behind to give direction to the movement,
 while the wings are flapped by an engine of
 forty-horse-power. This, it is thought, can
 be made to proceed through the air at the
 rate of forty miles an hour.

Our Future Motors.

The eighth edition of Mr. J. Bourne's "Treatise on the Steam Engine" has just been published. In the preface, the author says: "Before the first edition of the present work appeared, I had arrived at the conviction that the steam engine would pass away before very many years; and evidences of the soundness of this anticipation are presenting themselves every day. The most convenient substitute for the steam engine would be a thermo-electric engine. But very little of a practical character has yet been done in this direction. At present public expectation points more in the direction of air and gas engines; and both have been to some extent practically introduced. In the case of the steam engine there is this momentous fact to stimulate improvement—that even in the best and most economical engines, not more than one-tenth of the efficacy of the fuel is utilized as power. In the case of electro-dynamic engines, we know that there is little loss, or, in other words, that a given quantity of electricity produces very nearly its equivalent of mechanical power. With regard to the steam engine, I cannot say that any tangible improvement has been made in it within my recollection, and substantially it is the same machine that it was when dismissed from the hand of Watt; and it does not appear probable that any considerable improvement can now be introduced, except by some expedient which will enable higher temperatures to be employed with impunity. Superheating was one step in this direction. But it has been proved that where superheating is carried further than was usual in the old marine fine boilers, the lubrication of the piston and stuffing-boxes cannot be accomplished; and the valve faces and other internal parts of the engine are so much damaged by internal corrosion that the resulting injury outweighs the resulting benefit. Expansion is a resource always open to us; but the fact that practically it is employed to only a very moderate extent, sufficiently shows that it has drawbacks. Nevertheless, the tendencies of the last fifty years have all been in the direction of higher pressures and a larger measure of expansion; and nothing but the want of a boiler adapted for higher pressures than are now usual, has prevented the development from being carried out to a very much larger extent. Hitherto surface condensation has been of no use to steam navigation; as advantage has not been taken of it to introduce boilers capable of working safely with a much higher pressure of steam. A considerable step, however, in this direction is now imminent."



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ESTABLISHED [] MAY, 1860.

VOLUME SIXTEEN

—OF THE—

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Important to Californians.—Many inventors have lately had their claims for Patents seriously and in some cases fatally delayed by the unqualification of agents who have not complied with the Government license and revenue laws, as well as other new and imperative regulations. These discrepancies, although arising from the inexperience of honest agents, are none the less dangerous to applicants for patents, whose safest course is to trust their business with none but active and experienced solicitors. THE *MINING AND SCIENTIFIC PRESS* PATENT AGENCY has strictly complied with the requisitions of the Department, and properly filed all necessary papers as Claim Agents.

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THE GLOBE MINING CO. OF ALPINE.—We condense the following notice of "a live company," from the *Alpine Miner* of June 6th: This company has taken the necessary legal steps to increase its capital stock from \$100,000 to \$500,000, to be divided into 50,000 shares of \$10 each. Ten thousand of these shares will be placed in the New York market for the purpose of raising a working capital. The ledge has a splendid outcrop more than 100 feet wide, and is most favorably located for economical development. A tunnel 500 ft. in length will strike it at a depth of 250 ft. below the outcrop. The development of the mine will be pushed with all energy. "If," says the *Miner*, "capitalists in San Francisco or the East could but comprehend the remarkable geological and mineralogical structure of the deposit upon which the Tarshish, Esmeralda, Morning Star, Globe and Imperial No. 10, are representative claims, money for the development of our mines would be speedily forthcoming. Every one who examines for himself, is fully satisfied of the ultimate grand success of this region, and we are glad to observe, too, that they understand the necessities of the case—money to open up with—and prepare for real mining operations."

COLUMBIA FOUNDRY.—We alluded last week to the removal of this establishment. We understand that Mr. Reese Llewellyn and Mr. Stephen Fletcher—both well known here as skillful and practical workmen in connection with our foundries, have formed a copartnership with the intention of making a specialty of door-fronts, sash-weights, etc., under the firm name of Llewellyn & Fletcher, at 133 and 135 Beale street, in this city. We recognize in Mr. Fletcher an old acquaintance, engaged for some years in this same line of business at Grass Valley, Nevada county.

NEW PLANING AND SAWING MILL.—Mr. Metcalf is erecting a large lumber, planing and sawing mill, on Berry street, near Fourth. The building will cover a 50-vara lot, and will be two stories high.

New Mining Advertisements.

Bear River Mining Company, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of June, 1883, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of July, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third (30) day of August, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. my3

Gold Hill Tunneling Gold and Silver Mining Company.—Location: Gold Hill Mining District, County of Storey, State of Nevada.

Notice.—The Fifth Annual Meeting of the stockholders of the above named Company, will be held at their office, 414 California street, San Francisco, Cal., on SATURDAY, the eighteenth day of July, 1883, at 10 o'clock A. M., for the purpose of electing Trustees to serve for the ensuing year, and such other business as may properly come before it.

R. WEOENER, Secretary.
San Francisco, June 13, 1883. je13

Senator Silver Mining Company.—Location of Mine: Storey County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of June, 1883, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 408 California street.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of July, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the thirty-first day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINGARD, Secretary.
Office, 408 California street, San Francisco. je13

Yosemite Consolidated Mining Company.—Location of Works: Santa Fe District, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of June, 1883, an assessment of No. 3 of seventy-five cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 533 Kearny street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on Thursday, the sixteenth day of July, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifth day of August, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

OAVIO WILDER, Secretary.
Office, No. 533 Kearny street, corner of Sacramento street, San Francisco, Cal. Office hours from 12 to 2 P. M. je13

Mining Notices—Continued.

Adriatic Gold and Silver Mining Company.—Flowers District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twentieth day of May, 1883, an assessment of one dollar (\$1) per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 411 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the fifteenth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

PAUL NEUMANN, Secretary.
Office, No. 411 California street. my23

Adella Gold Mining Company, Rock Creek, Sierra County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the thirteenth day of May, 1883, an assessment of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the nineteenth day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, 37 New Merchants' Exchange, California street, San Francisco. my16

Chiptonena Mining Company.—District of Ores, Sonora, Mexico.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eleventh day of May, 1883, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 318 California street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the eighteenth (18th) day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. LOISE, Secretary.
Office, 318 California street, up stairs, San Francisco. my16

Fogus Mill and Mining Company.—Location of Works: Amador County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of June, 1883, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, No. 318 Front street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the eleventh day of July, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN J. SCOTCHLER, Secretary.
Office, No. 318 Front street, San Francisco, Cal. je6

The Flora Glazier Quartz Mining Company.—Location of Works: Plumas County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of May, 1883, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the twenty-fifth day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. N. THORNTON, Secretary.
Office, No. 17 Montgomery Block, San Francisco, California. my23

Globe Gold and Silver Mining Company.—Location of Works: Monitor District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of May, 1883, an assessment of two dollars per share was levied upon the capital stock of said Company, payable immediately in United States gold coin, to J. S. Powers, Silver Mountain, J. Winchester, Monitor, or to the Secretary in San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the eighteenth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

V. B. POST, Secretary.
Office, Union street, south side, one door east of Montgomery street. my30

Green Gold and Silver Mining Company.—Location of Works: Gold Hill District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1883, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 405 Battery street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the ninth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. JOHNSON, Secretary.
Office, No. 605 Battery street, San Francisco. my23

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1883, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the seventh day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery street, San Francisco. my16

Illegal Supplemental Advertising.—It would be well for Mining Companies, whose advertisements are repeatedly appearing in the Supplements of daily papers, to inquire into the legality of that class of advertising.

Lynn Mill and Mining Company, Kelsey District, El Dorado County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the twenty-first day of April, 1883, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
W. N. Wade	63	100	\$500 00
C. J. Wiegman	13	3	15 00
L. Stearns	63	1	5 00
A. M. Stetson	34 and 65-a	10	50 00
G. W. Clark	73	1-13	7 70
Wm. Smith	74	5-13	1 95
Wm. Henry and an Xess	75	4-13	21 15

And in accordance with law, and an order of the Board of Trustees, made on the twenty-first day of April, 1883, so many shares of each parcel of said stock as may be necessary will be sold at public auction, by Olney & Co., auctioneers, 426 Montgomery street, San Francisco, Cal., on the fifteenth (15th) day of June, 1883, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California street, San Francisco. my30

Old Colony Silver Mining Company.—Location of Works: Austin, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1883, an assessment of five dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, No. 323 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the twentieth day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

HENRY O. HLOWARO, Secretary.
Office, 323 Montgomery street, San Francisco. my16

Office Providence Gold and Silver Mining Company.—The Annual Meeting of the stockholders of the above named Company, for the purpose of electing Trustees and transacting other necessary business, will be held at the office of the Company, No. 37 New Merchants' Exchange, California street, San Francisco, on the TWENTIETH day of June, 1883, at 5 o'clock, P. M., of that day.

F. P. FOLSOM, President.
J. M. BUFFINGTON, Secretary.
San Francisco, May 28, 1883. my30

Rogers Silver Mining Company.—Location: Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fourteenth day of May, 1883, an assessment of one dollar per share was levied upon each and every share of the capital stock of said Company, payable immediately, in United States gold and silver coin, to John Bartoo, Treasurer, at his office, No. 215 Sacramento street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the sixteenth (16th) day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the sixth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN F. POPE, Secretary.
Office, No. 215 Sacramento street, San Francisco. my16

Enterprise, Virginia City, please copy and send bill to this office.

Silver Sprout Mining Company.—Location of Works and Mines: Kearsarge District, Inyo County, Cal.

Notice.—The Annual Meeting of Stockholders of the Silver Sprout Mining Company, for the purpose of electing Trustees to serve for the ensuing year, will be held at the office of the Company, No. 408 California street, on TUESDAY, JUNE THIRTIETH, 1883, at 3 o'clock, P. M.

T. B. WINGARD, Secretary.
San Francisco, June 5, 1883. je64w

Office Seaton Mining Company.—Location of Works: Orynton Mining District, Amador County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-seventh day of April, 1883, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm. Ashburner	41	1	\$100 00
J. W. Gashwiler	55	1	100 00
A. B. Oregon	33	10	100 00
Howard Havens, Trustee	49	5	50 00
B. F. Harding	10	10	100 00
Thos. LeRoy	34	10	100 00
M. S. Latham	60	5	50 00
M. S. Latham	61	5	50 00
M. S. Latham	62	5	50 00
M. S. Latham	63	5	50 00
M. S. Latham	64	5	50 00
M. S. Latham	65	4	40 00
A. B. McGreevy	40	4	40 00
Geo. C. Pringle	70	5	50 00
Ed Scott, Trustee	58	10	100 00
Ed Scott, Trustee	59	5	50 00
Ed W. Smith, Auctioneer	35	5	50 00
Lloyd Tevis	48	5	50 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of April, 1883, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 4 Hayward's Building, California street, San Francisco, on the thirtieth day of June, 1883, at the hour of 1 o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOEL F. LIGHTNER, Secretary.
Office, No. 4 Hayward's Building, California street, San Francisco, California. je6

Whitman Gold and Silver Mining Company.—Location of Works: Indian Springs District, Lyon County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-first day of May, 1883, an assessment of ten dollars per share was levied upon the assessable capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at his office, Room No. 10, 2d floor of No. 402 Montgomery street, San Francisco.

Any stock upon which said assessment shall remain unpaid on Monday, the twenty-ninth day of June, 1883, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the fifteenth day of July, 1883, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. W. COLBURN, Secretary.
Office, 402 Montgomery street, (Room No. 10, 2d floor) San Francisco, Cal. my23

Postponements and Alterations.—Secretaries are requested to give notice of postponements, or alterations which they may desire made in their advertisements at their earliest convenience. New advertisements should be handed in as early as possible.

Subscribers who do not receive the *Mining and Scientific Press* in due time, are requested to inform the publishers,

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Sellers made on the same principle excel all others.—They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
PACIFIC FOUNDRY,
151 1st St. San Francisco.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

—BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3v13f SAN FRANCISCO.

Notice to Miners,
Well-Borers and Water Companies.

M. PRAG IS NOW PREPARED TO MANUFACTURE Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved patterns, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,
8v13y Stove Store, No. 125 Clay street, below Davis.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

12v16tf No. 625 Mission street, near Second.

REMOVAL.

E. O. HUNT'S

Manufacture of
Windmills, Horse-Powers
and Pumps.

Has been removed from the old
stand on Second street, to
114 and 116 Spear st.,

Next above Stuart and south of
Mission st., San Francisco.

Hunt's Patent Wind-Mills, Tread
Horse-Powers, Sweep Horse-Pow-
ers, (for one or four horses), Saw-
ing Machines, Pumps of all kinds
for shallow or deep wells, in-
cluding Hunt's Submerged Pump,
Hunt's Globe Pump, and Hunt's
Single and Double-Acting Pump.

Pumping Machines and general
Machinery kept constantly
on hand and built to order.

Also, Water Tanks of all sizes.
Having put up large new buildings specially for my busi-
ness, with greatly increased facilities in the way of room
and steam power, I shall be able to build everything in my
line at greatly reduced rates.

All desirous of procuring water for irrigating or other
purposes, are invited to examine my articles before pur-
chasing elsewhere.

23v16 E. O. HUNT, Proprietor.

OIL STOVES!

MORRILL'S

Petroleum and Universal Oil Stoves

Have proved themselves a superior substitute for Wood
and Coal stoves, in that they work quietly, are cleaner,
bake and broil better, are MORE ECONOMICAL generally.
They are portable, can be used in any room, with or with-
out chimney, as they emit no smoke, soot or ashes. There
are nine different sizes designed for barbers, dentists, and
other mechanical purposes—as well as for cooking. They
are perfectly safe.

I now offer a reward of \$100 for every Petroleum Stove
exploded by Naphtha delivered at my store, 13 Geary
street, where they are for sale by

M. B. BULLARD,

Proprietor of Petroleum Stove for California, and Agent
for Universal Oil Stove for Pacific Coast.

N. B.—Petroleum Stoves burn Naphtha, converted into a
gas. Universal Oil Stoves burn Naphtha, Benzine, or Coal
Oil, with non-illuminating flame and light on a wick as
easy as a lamp.

21v16 3m

PACIFIC

FILE, REAPER AND MOWER SECTION

Manufacturers,

No. 53 Beale St., bet. Market and Mission,
SAN FRANCISCO.

Files re-cut, and warranted a good as new, or no charge.
Reaper and Mower Sections manufactured. The only estab-
lishment on the Coast.

First premium awarded at the State Fair, 1867.
26v15 3ms DURNING & KENNEY, Proprietors.

GLASGOW

Iron and Metal Importing Company,

Nos. 25 and 27 Fremont street,

SAN FRANCISCO.

Keep constantly on hand a large stock of best Bar and
Rundell Iron, Boiler Tubes, Plate and Sheet Iron, Gas and
Water Pipe, Anvils, Cast and Wrought Iron, and Water Fittings,
which they offer to the trade on liberal terms.

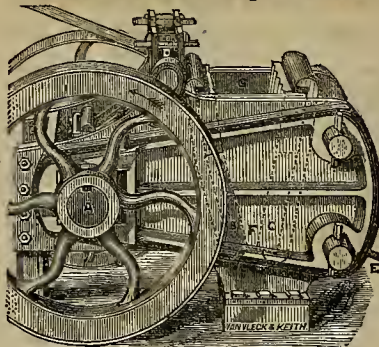
21v16 3m W. MCINDLE, Manager.

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL
assortment of Fire-Brick, Fire-Tile, Brick Dust, and
Tiles of different sizes. LIME, PLASTER AND CEMENT.
Corner of Market and First streets, San Francisco. Branch
Store, Sixth Street, Sacramento. Millmen and Gas Compa-
nies supplied at short notice.

7v16 6m H. T. HOLMES.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENTED IMPROVED QUARTZ CRUSHER.
The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:
No. 1.—Or 10 inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600
No. 2.—Or 15 inch Crusher, capable of similarly putting through five to six tons per hour.....\$850
No. 3.—Or 18 inch Crusher, will in a similar manner crush from seven to eight tons per hour.....1,200
These Crushers have been erected at several mines in the State of Nevada, and others in Calaveras, Tuolumne and Mariposa counties, to whom applicants can be referred as being the most efficient, cheapest, and least weight compatible with strength and durability, of any Crusher yet erected.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATING BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—Diagrams and explanations afforded on application to the subscribers.
A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or
CHARLES RADCLIFF,
Express Building, 402 Montgomery street,
San Francisco.

C. F. TRAVIS,

Manufacturer of
**FRENCH
BURR
MILL-Stones,
AND
PORTABLE
MILLS.**

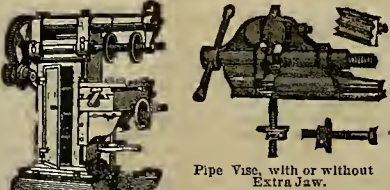
Agent for
Dufour & Co's
Celebrated
DUTCH ANCHOR BOLTING CLOTHS.
Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and
Rebuilt; Mill-Stones Balanced with Follenhann's Patent
Balance, of which I am sole Proprietor for California, Ore-
gon, and Washington Territory. C. F. TRAVIS,
5v16tf 109 Mission street, San Francisco.

ROBERT BRAGG,



STEERING WHEELS

ON HAND AND MADE TO ORDER.
JOB WORK done to order, at the shortest notice.
Main street, between Folson and Harrison,
23v15 3m San Francisco.



Pipe Vise, with or without Extra Jaw.

Standard Milling Machine.

UNION VISE COMPANY,

OF BOSTON.

Make Vises of all sizes and kinds, for Machinists, Black-
smiths, and all other heavy mechanical work. Wood-work-
ers' and other Vises, with Covered Screw, for general me-
chanical work. Standard Milling Machines, very simple
and easily adjusted. Address, Boston, Mass. 23v16-ly

Belting and Lacing.

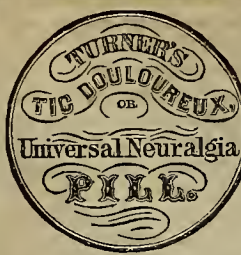
AN ENTIRELY NEW AND SUPERIOR ARTICLE OF
an exclusively mechanical preparation, made to order on
short notice, and for sale by H. ROYER, at 435 Brannan
street, between Third and Fourth. Refers to Elson Bros.,
Pioneer Mills; Martin Steen, National Mills; Horace Davis,
Golden Gate Mills; also, N. W. Spaulding, Saw Manufac-
turer. 6v16 3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel, Files,
Etc., Shear, Spring, German, Plow, Blister and Too Calk
Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks,
Stone Cutters', Blacksmiths' and Horse-Shoers' Tools.
319 and 321 Pine Street,
Between Montgomery and Sansome, San Francisco.
10v14qr



A SAFE,
CERTAIN,
AND
Speedy Cure
FOR
NEURALGIA,
AND ALL
**NERVOUS
DISEASES.**
Its Effects are
Magical.

It is an UNFAILING REMEDY in all cases of Neuralgia
Facialis, often effecting a perfect cure in less than twenty-
four hours, from the use of no more than two or three
PILLS.

No other form of Neuralgia or Nervous Disease has failed
to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and gen-
eral nervous derangements,—of many years standing,—
affecting the entire system, its use for a few days, or a few
weeks at the utmost, always affords the most astonishing re-
lief, and very rarely fails to produce a complete and perma-
nent cure.

It contains no drugs or other materials in the slightest de-
gree injurious, even to the most delicate system, and can
always be used with

PERFECT SAFETY.

It has long been in constant use by many our most

EMINENT PHYSICIANS,

who give it their unanimous and unqualified approval.
Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	43 "

It is sold by all wholesale and retail dealers in drugs and
medicines throughout the United States, and by

TURNER & CO.,

Sole Proprietors,

9v16 6m 120 Tremont street, Boston, Mass.

THE GREATEST
NATURAL CURIOSITY

IN THE WORLD.

THE CELEBRATED

PHOTOGRAPHIC LANDSCAPE ROCK,

Cut from a solid ledge in El Dorado County, will be
on exhibition for a short time, at

WOODWARD'S GARDENS.

No Extra Charge.

21v10 1m

SCREWED BOOTS.

LUMSDEN'S CALIFORNIA APPARATUS

FOR THE MAKING OF

SCREWED BOOTS.

Patented Feb. 21st, 1868.

PRICE, \$50.

With this cheap and valuable invention, Boots and Shoes
can be made on lasts, with or without being plated, in any
style that is required. The State Right will be disposed of
at figures that will afford the purchaser an opportunity to
realize a fortune.

For particulars apply to
NICHOLAS LUMSDEN, Inventor,
Nevada House, 51 Stevenson St.,
22v16tf San Francisco.

A Book for Every Miner and Scientific Man.

JUST PUBLISHED.

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arsenurets, and Gold and
Silver Ores generally.

Price, ——— \$7.50

A liberal discount to the Trade. For sale by the Booksellers
Sent to any part of the United States, postage paid,
on receipt of the price. Address,

DEWEY & CO., Publishers,

Office of the Mining and Scientific Press, 505 Clay street,
16v1tf SAN FRANCISCO.

Legitimate Photography

OUR SPECIALTY.

THE FIRST PREMIUM AWARDED AT
the late State Fair for the best plain Photo-
graphs, and a special premium for the best
Cabinet Portraits, to SILAS SELLECK, 415
Montgomery street. Prices reduced to con-
form to Association rules. Patent secured.
23v15 6m

Fire, Hose and Machine Belting.

THE SUBSCRIBER CONTINUES TO MANUFACTURE
Oak Tanned Leather Fire Hose, warranted superior to
Eastern Hose, manufactured at the Sixth Street Tannery,
San Francisco.
21v16tf JOHN J. FULTON.

BEE-HATERS.—The Boston Journal says
"the people of Wenham, Mass., have voted
by a two-thirds majority, that no bees shall
be kept in the town; the vote being di-
rected against an extensive bee-keeper whose
stock has been troublesome." The Ameri-
can Naturalist says: "Have we gone back
to the Dark Ages?" The Bee Journal makes
some remarks upon the subject, from which
we quote: "A silly prejudice against bees
is entertained by some fruit-growers, based
on the notion that the crops of fruit are in-
jurious affected, both in quality and quan-
tity, by the visits of bees during the blos-
soming period. A more unfounded notion,
or one deriving less support from observa-
tion and science, can scarcely be conceived;
yet it regularly looms up once or twice in a
century."

The fact is, as has been repeatedly proven
beyond a question, that bees are decidedly
beneficial rather than otherwise; causing
the fruit to set, by conveying the fertilizing
pollen from flower to flower. Many in-
stances can be cited, where the crop of fruit
was at once, and permanently, rendered
more abundant and more regular, by the
introduction of an apiary into the orchard.
Ten years ago, the celebrated pomologist,
Prof. Lucas, at the Apian Convention held
at Stuttgart, said that the interests of the
horticulturist and the bee-keeper "run par-
allel with each other."

A NEW PRINTING INK.—The following is
from the foreign correspondence of the
Philadelphia Printers' Circular:

"A new ink for printers has been invent-
ed by Professor Artus and Mr. Fleck-
stein, a master-printer at Lichtenhain, near
Jenna, which is said to be a complete suc-
cess. The composition of it is as follows:
Venetian turpentine, 4½ ozs.; fluid soap, 5
ozs.; rectified oleine, 2 ozs.; burnt soot, 3
ozs.; Paris blue, (ferro-cyanic acid), ½ oz.;
oxalic acid, ¼ oz.; distilled water, ¼ oz.
Gradually warm the turpentine and the
oleine together; put the soap on a marble
plate, and gradually add, continually rub-
bing, the mixture of turpentine and oleine;
when well mixed, add the burnt soot, which
must be well powdered and sieved before;
then add the Paris blue, dissolved in the
oxalic acid, continually rubbing the com-
position on the stone, the Paris blue and
the oxalic acid having been mixed be-
fore with water in the above given propor-
tion. A solution of soda in water is suffi-
cient to thoroughly cleanse the type."

ENGLISH EXPRESS ENGINES.—Several new
and powerful engines, especially for run-
ning heavy express trains, have recently
been put upon the Great Northern Railway.
The Boston Railway Times says: "These
engines have recently completed the jour-
ney from King's Cross to Peterborough, a
distance of seventy-seven miles, in one
hour and twenty-eight minutes, although
they had to contend with heavy gradients
for forty miles of the distance, and with
twenty carriages behind them. The leading
dimensions of these engines are as follows
viz: The driving and trailing wheels are
7 ft. in diameter, and coupled together; the
leading and tender wheels are 4 ft. 3 in. in
diameter throughout; the barrel of the
boiler is 10 ft. 1 in. long by 3 ft. 10 in. in
diameter inside in the smallest part; the fire-
box casing is 6 ft. 4 in. long by 4 ft. 10
outside; the cylinders are 17 in. in diame-
ter, with a stroke of 24 in.; the heating sur-
face in box is 114½ square feet, and in the
tubes 907 square feet, making a total heat-
ing surface of 1,021½ square feet, with a
grate surface of 19½ square feet; the ten-
der holds 2,500 gallons of water and two
tons of fuel; the propelling power of the
engine is equal to 12,000 lbs. and the ad-
hesion on the rails may be taken at 11,700
pounds."

A LAND OF HONEY.—Messrs. A. J. Cook
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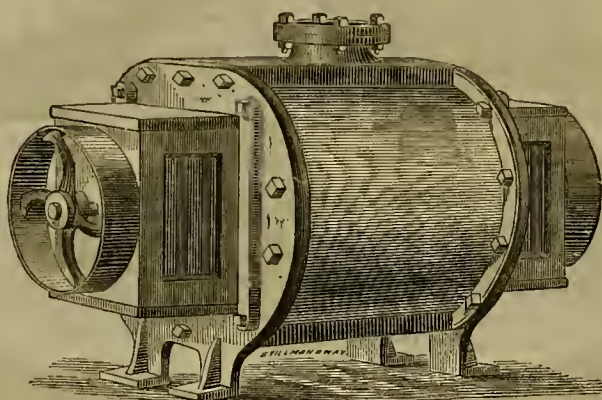
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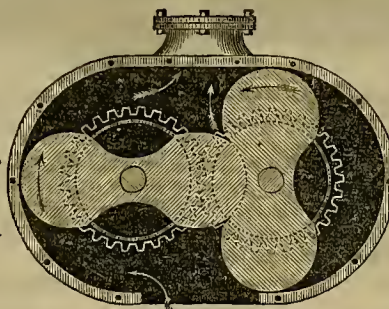
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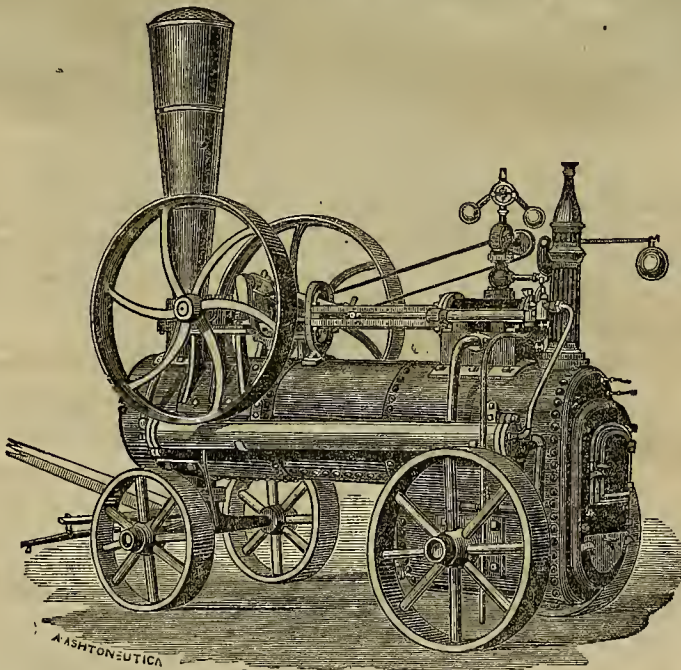
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THE PACIFIC QUARTZ ROOFING COMPANY, under the management of Messrs. Meredith & Carrighan, which has been operating for some time at Folsom, is making arrangements to establish themselves in this city. We shall make a full notice of this new roofing material next week.

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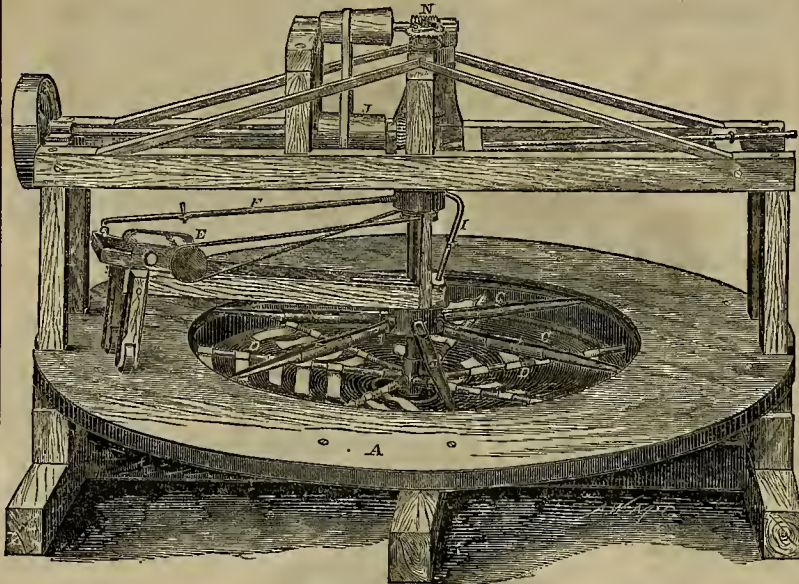
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The illustration given herewith, was fully described in the Mining and Scientific Press of March 21, 1868.

One of these machines may be seen in constant operation at the Eureka (Watt's) mine in Grass Valley, where it is giving the fullest satisfaction, and is working all the tailings from thirty stamps. Another machine may be seen at the Banner mill, in Nevada, and a third below the Gould & Curry Company's mill, near Virginia City.

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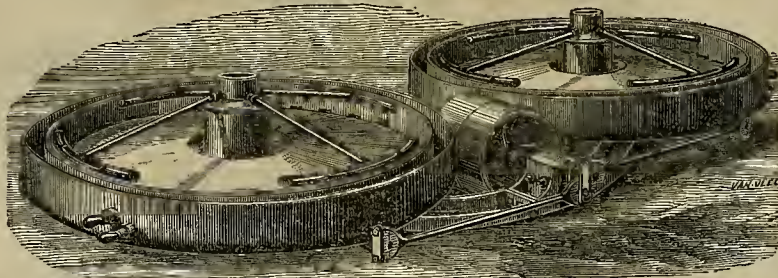


FIG. 1.

There is no description of machinery of so much importance to the mining interests of California, at the present time, as that for the separation of sulphurets. Mines are now abandoned, or, what is worse, paying assessments, which, if the sulphurets were saved, would yield handsome dividends. Great difficulty, owing to the varied form and character of the sulphurets, has been experienced in devising a machine to separate them; and it is only by close and patient observation, persevering study and careful experiment, that any machine can be made or matured so as to save a large percentage of them. The best is that which saves most with the least expenditure of time, money and power. Many have been tried, and abandoned; and none seems to meet the requirement of the mining interest so well as that now patented by Mr. Hungerford, which is an improvement on the well-known Hungerford & Prater Concentrator, with which his name is already so familiar.

Fig. 1 is a perspective view of that pan as now constructed. For economy of space and machinery, one shaft is made to drive two pans, which are set and arranged as shown in the engraving.

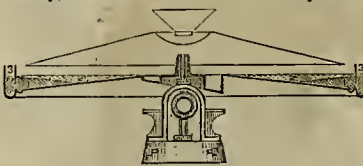


FIG. 2.

It should be borne in mind that Mr. Hungerford is the original builder and maker of the celebrated Prater Concentrator, and his name should be sufficient guarantee to warrant the public in examining his new machine before purchasing elsewhere.

RECOMMENDATIONS:

OFFICE OF THE ONEIDA MINING COMPANY,
JACKSON, May 13, 1868.

Mr. MORGAN HUNGERFORD—Dear Sir:—In regard to the four Hungerford Concentrators that I bought of Messrs. Goss & Lambard, last month, I will say that I put them up in the Oneida Mill soon after I arrived here, and find that they save sulphurets well and clean, and work to my entire satisfaction. I have tried many other concentrators, but these stand up and work better than any other I have used. I have ordered Messrs. Goss & Lambard to make eight more for me as soon as possible.

Very truly yours,

JAMES MORGAN.

BIG OAK FLAT, May 23, 1868.—Mr. Thos. Mulford—Dear Sir:—I have used two of Mr. Hungerford's Concentrators in the Rattlesnake Quartz Mill, at this place, and find that they work full as well as they are represented to do.

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VOLUME XVI.
Number 25.

Passing up the main stairway, and turning to the right and left, at the ascent, the visitor reaches the main Library Room, through a large upper hall or vestibule. The opposite walls of this hall are ornamented with two magnificent photographic views—the one representing the Coliseum of Reme, as it now appears in its massive and stately ruins, the other being a view of

Volatility of Gold and Silver.

NUMBER TWO.

In our issue of May 23d, we made some notice of a series of experiments by Mr. James Napier, Assayer at the time for the Mexican Mint, with regard to the volatility of gold and silver. As the article appears to have attracted some degree of interest, we have ventured to continue further notes upon the same subject, as follows:

Gold evaporates just as water, or ether, or zinc, or any other substance which assumes the vaporous state. Its remaining fixed in the fire or going off in vapor is entirely a question of temperature; but it should be added that our gold melting furnaces seldom approach that intense heat at which any loss of gold from pure evaporation can take place. It was found, when gold was melted in the focus of the great Italian burning glass, that it fumed away in vapor; and that a silver ball held in contact with the vapor was palpably gilt. Again, St. Claire Deville, during his classical experiments on a new mode of working the metals of the platinum ore by an oxyhydrogen blast, found that, operating on platinum containing gold, he could vaporize and distill the gold out of the baths of platinum just as zinc or cadmium or mercury are distilled at lower temperatures; so that in fact there is no reasonable doubt of the volatility of gold. But the question as to loss of gold by this volatility during the ordinary melting operation is not altogether as simple as we have put it; gold is seldom in the state of the pure metal, and it is often purposely alloyed during its passage through the melter's hands; and it then becomes a question whether the gold, thus alloyed with metals of easier volatility, does not evaporate in company with them at a temperature lower than that at which pure gold takes the state of vapor. Mr. James Napier quotes the experiments of Kunkel, who states that after keeping gold exposed to the highest heat of a glass furnace for two months, he found no sensible diminution or alteration of weight. Kunkel, it may be remarked in passing, has the credit of having invented, or at least of having developed, the art of communicating a ruby color to glass by the use of gold. Napier makes his first experiments with nearly pure gold, with the corset gold resulting from the ordinary assay, and which contains usually a little silver with possibly very delicate traces of other metallic impurities. The following table shows the results of these experiments:

	Weight of gold used, grs.	Time kept in fire, hours.	Loss in weight, grs.
No. 1.....	20	7	0.12
No. 2.....	50	7	0.12
No. 3.....	100	6	0.11
No. 4.....	100	8	0.12

No. 1 was weighed at the expiration of each hour, and lost exactly 0.01 grain per hour.

These experiments, according to Mr. Napier, do not show an exact uniformity of loss, but they prove that gold, even when pure, can be volatilized by the heat of a common furnace; the inequality of the results is accounted for by the inequality of the heat of the fire.

In the fourth of the above experiments, a most interesting result was obtained, and one which points out beyond doubt that gold is volatile when in fusion. The gold in this experiment was melted in a small fire-clay vessel, a cupel of house-ash being inverted over it, and kept so during the whole time of fusion. On removing the whole from the fire, it was observed that the inverted cupel was tinged with a purple color—and not only on the surface, but to a little depth. The surface of this cupel was carefully examined with a strong lens, to see if there were any small shots of gold upon it; finding no shots, the purple color was scraped off and assayed, by which means a small button of gold weighing 0.06 of a grain was obtained. This, of course, was only the one-half of what the button had lost altogether, as the junction between the small melting-pot and the inverted cupel was not perfect, and consequently some of the metallic vapor escaped; some of it was also deposited on the sides of the earthen crucible. In what state this gold passes off has not yet been determined. These experiments were repeated many times, with nearly the same results.

From these experiments, Mr. Napier passes to others performed on alloys of gold with copper. He states that, with such alloys as those formed for minting, it is well known that a working loss, due to the gold passing off in the vaporous state with the copper, is experienced; and he further proceeds to state that in pouring the alloy of gold and copper from the black lead crucibles in which it was melted, a vapor was observed to rise from the mass, in such an amount as to indicate under the circum-

stances that the alloy itself must be passing off. Then he goes to experiment.

A common glass jar—used for collecting gases in the laboratory—was obtained, made wet inside with distilled water, and held about four inches over the crucible, as the alloy was in the act of being poured into the molds. This occupied about one minute of time. On removing the glass, it was entirely coated inside with small metallic globules, which were washed out with distilled water, dried, and examined with a lens. The whole was then weighed, giving 4.8 grains, which afforded after cupellation a button of pure gold weighing $4\frac{1}{2}$ grains. These results were confirmed on repetition of the experiment.

Mr. Napier next proceeds to the inquiry of how much gold is really lost when kept in fusion with different proportions of copper for a length of time. He melts his alloy in small fire-clay pots in a common assay muffle; the copper is rapidly oxidized, causing a considerable loss of gross weight. To obtain the actual loss of gold, the resulting buttons were assayed with the following results:

	Wt of gold in grs.	Wt of cop. in grs.	Time in fusion, hours.	Loss of gold in grs.
No. 1.....	100	12	6	0.234
No. 2.....	100	10	4	0.210
No. 3.....	100	20	4	0.450
No. 4.....	100	10	6	0.300

In No. 1 the heat was only sufficient to melt the alloy; in Nos. 2 and 3 the heat was a little greater than in No. 1; and in No. 4 it was as strong as could be obtained in the muffle.

These results are stated to show that the greater the amount of copper and the greater the heat, the greater is the amount of gold lost; and that gold when alloyed with copper is more volatile than when alone.

HISTORY OF A TELEGRAPH CABLE.—The cable which is to connect Cuba and Jamaica with Panama, was originally manufactured in London, to connect Asia and America by way of Behring's Straits, and was shipped to Victoria. But the success of the Atlantic cable was the death blow of the Pacific company, and the cable was not shipped. The East India Telegraph Company then proposed buying it, to be used in China, but the negotiation failing, it was ordered to California. Before, however, it could be appropriated, other parties came in and purchased it, and now, never yet having been disturbed since being shipped from London in 1865, there seems every probability that it will finally find a resting place, filling its ultimate mission as a link in completing communication between the United States and the Isthmus of Panama.—*Scientific American*.

THE INFLUENCE OF FORESTS ON CLIMATE. We have frequently directed attention to the mischievous effects of the reckless cutting down of trees in France and Southern Europe, where the climate becomes every year dryer, and the soil is washed away by destructive floods, to the impoverishment of whole provinces. Warnings have long been uttered by competent observers, but in vain; a sort of rage for cutting down woods has prevailed for the last two centuries. But at length the people most interested—the inhabitants of the countries involved—have begun to open their eyes to the question, and a petition has been laid before the French Senate, which points out that the army might be employed in planting trees on the now barren hill slopes and plains. It would be something new to exercise soldiers in so peaceful and beneficial an enterprise.—*London Athenaeum*.

INSTANCES OF LONGEVITY.—A French convict was condemned at the age of eighteen years, in the year 1724, to suffer imprisonment for the term of 100 years. The convict served his time, was discharged, travelled on foot to Lyons, and laid claim to an estate that belonged to him, and in settlement therefor, he received the sum of 4,500 pounds. Donald McDonald, at the age of 107 years, was sent to the House of Correction for disorderly conduct, and afterwards, at the age of 137, came to a premature death by falling down stairs. A Russian is spoken of who lived to the age of 168 years; he married for the third time at the age of 93, and lived in the enjoyments of matrimonial bliss with his third wife, for a period of fifty years. Another case is mentioned of a man, who, at the age of 169, testified in court to an event that took place 140 years before.

AN OLD SAFE.—The old wooden safe in the bank of Marietta, the first bank in Ohio, is in possession of Mr. Lamont, of that place. Unlike safes of modern times, it is constructed of wood, with sides two inches thick, and strapped with iron bands three inches in width, into which nails are driven every three-quarters of an inch. The bands pass around the safe in both directions, and at the points of intersection are secured by nails that pass through into the wood. It was built in New York in 1807.

Vital, Physical, and Mental Phenomena.

The following is an abstract of a part of a paper by Robert Dunn, F. R. C. S., which is published in the *Transactions of the Ethnological Society of London*:

"We know nothing of life apart from an organism, and we have no evidence of mind independently of a brain and nervous system. A living organism is required for the display of the vital phenomena, and a brain of nervous system for the manifestations of mind. Life, he said, had accordingly been defined as the collective expression for a series of phenomena which take place exclusively in bodies that are organized; and mind, as the functional manifestation of the living brain. But, he it remembered, he added, that matter and the physical forces of external nature, which underlie all vital phenomena, and the changing states of consciousness, which constitute our mental life, are equally inscrutable to us. Matter and force are co-relatives and co-existent; nor can we conceive of the one, but only in association with, by, and through, the other. The correlations of the physical forces point to an unity of force; nay, lead us, as Mr. Grove thinks, to the belief that "the fundamental conceptions of matter and motion will be found sufficient to explain physical phenomena." Motion, indeed, may be regarded as a kind of common ground, upon which nature, life, and mind may be said to meet. But still the phenomena of life and mind are so antagonistic to, that they are not to be identified or confounded with, nor can they be included under, mere physical phenomena. The fact, indeed, cannot be denied that the agency of matter and the physical forces is as essential to the manifestations of life, as life itself is to the display of intelligence. Still the vital and mental forces are not to be confounded with the physical; for the truly vital phenomena—the processes of formation, growth, and multiplication—occur in living beings only; whereas the development of light, heat and electricity, whether they occur in living organisms, or in inanimate matter, are purely physical phenomena. The living germinal matter of the organism is alone the seat of vital actions; and life in its mysterious association with matter is transmitted from one living organism to another. The vital part of the impregnated egg consists of living matter, and that results from the living matter of the beings which produced it. All attempts to give vitality by means of the physical forces to inanimate matter have been vain and futile. Not the slightest approach has been made towards the formation of anything having the properties of the lowest and simplest forms of living matter. Nay, every attempt, by synthesis, at the formation of albumen or fibrine, or even of starch or the cellulose of the very lowest vegetable organisms, has been unsuccessful. Every living particle comes from a previously existing living particle.

As to mental phenomena—Mr. Dunn in considering the phenomena of mind, of which consciousness is the exponent, began by remarking, *in limine*—from the first moment that the primordial cell of a human organism comes into being, and is launched upon the ocean of time and space, the entire individual is present—an organized entity exists, fitted for a human destiny; and, from the same moment matter, life, and mind are never for an instant separated—their union constituting the essential mode of our present existence.

The mind, like the body, passes through its phases of development and growth. In the primordial cell are potentially contained the vital, nervous, and mental forces; for inherent in it are the powers of nutrition, development, under which, *in utero*, duly supplied with the nutrient pabulum, the bodily fabric is evolved and built up, in accordance with all the subsequent wants of the future man. Among others, the nervous system also, upon the vesicular matter of the encephalic ganglia of which the mind is dependent for the manifestation of all its phenomena throughout the totality of life. As soon as embryonic life is passed, the nascent consciousness becomes awakened. Our outer life begins with consciousness, and with consciousness it ends. This nascent consciousness, purely sensational at birth, emerges gradually, step by step, from self-consciousness to world-consciousness, and, through the ideational and emotional up to its highest phase of intellectual development. Consciousness itself, as the exponent of mind, is an ultimate fact in animal life, and implies mental existence. It is the universal condition of intelligence; for it is involved in every sensation which we experience, and

n every mental act which we perform in feeling, perceiving, thinking, and willing. We can best conceive of it, in relation to time, as an incalculably rapid succession of acts or states from the moment of birth, and as passing through a series of developments.

Self-consciousness is the primary condition of intelligence; and Psychology has been briefly but aptly defined—developed consciousness."

MEXICAN SILVER MINES.—R. Tredinnick, Consulting Engineer, writes to the *London Mining Journal* upon this subject. We copy a portion of his communication: Mining in Mexico is carried on in a very crude manner. Generally, whenever the water level is reached, the mines, no matter how rich and promising as regards the future, are abandoned, and others, undeveloped and requiring time to open, are taken to by the natives, who prefer the chance of discovering shallow deposits of minerals to the more laborious and expensive, though probably tenfold more profitable, explorations through the aid of machinery in deep mines. Time and experience will remedy this state of things, and probably another half century may find mining enterprise in Mexico carried on with all the improvements and aids of modern skill, the sciences, and the arts. The lodes are found at times so rich that it has been recorded that a single deposit, only 100 feet long, produced, in six months, 432,274 lbs. troy of silver, valued at 1,000,000 sterling. The great mine of La Luz, in the province of Guanaxuato, yielded annually for five years 1,000,000 profit. There are upwards of 500 mines in Mexico, and between 3,000 and 4,000 silver veins have been discovered. One of these veins, in the State of Guanaxuato, was wrought to a great depth, and yielded returns and profits of a fabulous amount, when compared with the gains accruing from other industrial pursuits. The geological character of the strata differs in several districts, and presents many curious and interesting phenomena, and especially to the practical and observant explorer of silver-producing regions. The great central plateau of Anahuac is composed of porphyry, characterized by the constant presence of hornblende, and the almost entire absence of quartz. In other places the deposits occur in syenite. In Guanaxuato—probably the richest mineral district in Mexico—the ores lie in a formation of clay-slate, while in some places they are embedded in transition limestone. The only veins worked for gold are in Oaxaca, where they traverse formations of gneiss and mica-slate. Many of the silver veins contain proportions of gold, which are separated from the silver by the well-known process in metallurgy called "parting."

JUDGE FISHER ON REISSUES.—SUSPENSION OF A GOOD RULE.—The Patent office has abrogated its recent rule in respect to suspending action upon applications for reissues for thirty days. The recent decision of Judge Fisher pronouncing this rule of the Patent Office not justifiable under the statute, may be legally correct, although we differ from him on this point.

It has never been questioned but that the Commissioner has discretionary power to adopt rules and regulations for the management of the Office not expressed in the Patent Laws, and this rule, for suspending reissues for a limited time and publishing the proposed new claims that parties interested might advance evidence to the Office showing cause why such claims should not be allowed, was one of the best and most practical that have been recently adopted. Of course the sewing-machine interest and some other large monopolies were opposed to this rule, for it prevented their slipping through broad claims unknown to the public; but all honest inventors approved of the plan of publishing claims for reissue before official action upon them, and we have never known of any detriment arising to any one in consequence, who was justly entitled to the claims asked for under a reissue. But Justice Fisher's decision sets aside this rule, and hereafter reissues cases will be acted upon immediately on their receipt, and no notice is to be taken by the examiner of testimony adverse to the applications.—*Scientific American*.

STEEL BILLIARD BALLS.—Among the new uses of steel, one of the latest, as we learn from a foreign cotemporary, is the employment of this metal in the manufacture of billiard balls, in place of ivory. Such balls are recommended for their great elasticity and their freedom from any liability of cracking.—*Scientific American*, May 26th.

Mechanical.

Testing Iron by Magnetism.

We have already spoken of Mr. Saxhy's remarkable experiments in this line, and his success in detecting flaws, with a common pocket compass, in bars of iron which were previously supposed to be homogeneous. These experiments and the conclusions therefrom derived, promise to be of very great value; for heretofore there has been no known method of making a satisfactory test of the strength of such bars, except by cutting or filing, or breaking them;—thereby producing the very defects which we wish to avoid. Mr. S. has delivered a lecture, published in the *London Artizan* for May, from which we cull some portions which will be found interesting. He assumes, as the groundwork of his system of testing, that a mass of iron is an aggregate of distinct particles, each of which has polarity; and that these particles are not (among themselves) in immediate contact. Also, that if each particle has polarity, the whole mass made up of any number of such particles is a magnet; inductively so, if pure soft iron,—permanently so, if steel or cast iron. Hence he asserts, that the old notion that magnetism exists only on the surface, is an error. He assumes also, that strength in iron is a consequence of a certain molecular condition resulting from magnetic causes. Tensile strength is but an insufficient test of what is called "goodness" in iron; inasmuch as it only indicates strength in one direction, and is not incompatible with brittleness. "Pure" iron, as used in commerce, is that which is best adapted for manufacturing purposes generally, so far as regards strength in every direction; and a test of its goodness and purity is its capability of being tied up, cold, into a compact knot. He exhibited a sample, which, when pulled into that form cold, only broke at a strain of forty-three tons to the square inch.

If we take a magnetized bar of iron or steel and divide it, we shall have two separate magnets, each having its north and south poles; further divisions of these produce smaller magnets, until our powers of further mechanical division are exhausted. Of all these magnets, the poles which point one way are north; and of course each of these is in contact with the south pole of another. This "continuity of alternate polarity" is the condition which is essential to the strength of the bar. The magnetic test is of value whether for cast or forged iron or steel. The lecture closes thus:

"A few noteworthy defects in the common mode of forging iron have been detected by the magnetic test. For instance, the upsetting of a piece of iron should always be done at as near a welding heat as possible. If otherwise done it causes flaws perceptible to the magnet; and let us here remark that many faults in condition might be remedied by annealing. As an instance: At Chatham my attention was called to the fracture of a long piece of 4-in. square iron, which was being forged out of best scrap. During manufacture it broke in two near the slings, certainly from vibration having caused it to crystallize; I believe it to have been very carefully worked and very good in quality, but the condition, had it not been broken, would doubtless have been greatly benefited by subsequent annealing.

And again, experiments have shown me that whether iron be forged in one direction or another, as regards the magnetic meridian, so will its strength vary. Hence we may reasonably question whether all testing machines should not be placed in a direction east and west, and for chain cables especially, in the iron of which we wish to avoid destruction of elasticity.

And again, in welding iron it is bad to use the ends beveled, laying pieces of filling up iron across them. This crossing of fibres, even after a sound weld, is an element of weakness, and it has been clearly proved by the magnet test to be very objectionable.

The Weight of Locomotives.

Year by year, ever since the first inception of the present railway system, the weight of locomotives has been increasing. From weighing eight, ten, or twelve tons, locomotives are now in use that weigh from forty to fifty tons, and several, recently constructed, weigh fifty-one tons each. Judging by results, it would seem that the maximum has been reached, unless a corresponding increase is made in the resisting power of rails, and a vast advance in the general character of the roadway. Under the forty-two-ton locomotives of the Erie Railway, the iron rails are crushed down and made useless or dangerous in from one month to twelve; and it is plain enough that the limit of resistance has been more than reached, and that some other material than iron must be used under the heavy modern locomotive. Whether that material is simple steel, or steel and iron mixed, remains to be decided. Ample experiments have shown that a well made steel rail, besides presenting a better wearing surface, has nearly double the stiffness of iron, section for section, to resist the deflection caused by the weight of the driving-wheels; and as stiffness, or resistance to deflection, is one of the main points to be secured, this element goes a great way in favor of using steel rails. Eminent railway managers and engineers favor the continued use of iron, but insist upon a multiplication of cross-ties, reducing the space between the centers of the ties from thirty inches to twenty inches, or laying them as close to each other as is possible, only allowing room enough between them for tamping; and this may be well enough on roads that have moderate weight of equipment, but on roads with engines weighing forty or fifty tons, it is proved over and over again that iron rails cannot resist the crushing weight. At every point where the rail touches the sleeper, the effect of the blow of the driver is plainly seen, and though a multiplication of cross-ties might mitigate the effects, yet the partial remedy is an expensive one, because the wooden superstructure rapidly deteriorates from climatic effects when assisted by this heavy hammering. If the exigencies of business would allow of it, and managers would be satisfied with a reduction in the weight of engines down to twenty-five or twenty-eight tons, and a reduction in speed, iron rails properly manufactured might be continued in use; but as the general tendency is to an increase in weight of engines, and an increase in speed, the rail question, on lines crowded with business, has but one settlement: the strongest and stiffest rail must be used, and that material is steel.—*American Railway Times*.

THE PROPER FORM FOR STEAM BOILERS.

The following is condensed from an article in *The Engineer*: In designing boilers of any type, it should never be forgotten that the great secret of the economical generation of steam lies in breaking up the gas current as much as possible, and throwing it into eddies and whirls by obstacles placed in its way. In theory, this can be done by causing the flame and smoke to ascend through a box filled with small horizontal tubes containing the water. Such boilers have been tried, but not found to work well, because the circulation of the water could not be properly maintained. Although found to be economical in fuel, they were found liable also to rapid deterioration by use. Vertical water tubes answer far better, provided proper precautions are taken to maintain free water circulation within them. The area of the exit should be contracted so as to compel the gases to fill all the depth of the flue; otherwise they will rise toward the upper ends of the water tubes, which are usually filled with foam not well calculated to absorb heat. It cannot be said that this expedient has been found quite satisfactory; and it is certain that a thoroughly good boiler with vertical water tubes transverse to the direction of the current has yet to be produced. There are several such generators in use, however, which although not quite perfect, are more nearly so as steam generators than any fire-tube boilers in existence.

LOCOMOTIVES.—Of six new locomotives built or building for the Great Western Railway Company, the exterior of the boiler is made entirely of steel, the furnace or fire-box is made of copper three-quarters and half an inch in thickness, and all the axles are steel, as are also the tires of the wheels.

Scientific Miscellany.

Lignites of the West.

The following is condensed from an abstract of F. V. Hayden's forthcoming report of the United States Geological Survey of Nebraska, published in the *American Journal of Science and Arts*. The lignite beds of the Laramie Plains are from five to eleven feet thick, and occupy a basin estimated at 5,000 square miles. The product is of excellent quality, is non-bituminous, and contains seams of jet which resemble cannel coal. It answers at least quite as well for fuel as any wood. There is an abundance of iron ore in the vicinity, and the Union Pacific Railroad Company will probably establish rolling-mills at no distant period. The Marshall Mines, at South Boulder Creek, are probably the most valuable in the West. They have been worked for four or five years. Fifty tons of this lignite is sold at Denver, daily. There are eleven beds, each from three to thirteen feet thick, making a total thickness of from thirty to fifty feet of solid lignite. There is another bed twenty miles south of Cheyenne City, of excellent quality. The summit of the hills near this bed of lignite is covered with loose oyster shells, and there must have been a thickness of four feet or more almost entirely composed of them. The species seems to be identical with the one found in a similar geological position in the lower lignite beds of the Upper Missouri, near Fort Clark, and at the mouth of the Judith River, and doubtless was an inhabitant of the brackish waters which must have existed about the dawn of the Tertiary period in the West. These lignite beds are exposed in many localities all along the eastern base of the mountains. According to the exploration of Dr. J. L. Le Conte during the past season, these same lignite formations extend far southward into New Mexico, on both sides of the Rocky Mountains.

Specimens from the Marshall mines were found to contain 59 per cent. of fixed carbon. This shows its superiority over lignites found elsewhere. Mr. Hayden came to the conclusion that it would prove to be better than ordinary Western bituminous coals, and rank next to anthracite for domestic purposes. Being non-bituminous, it will require a strong draft to burn well. It is as neat as anthracite, leaving no stain on the fingers. It produces no offensive gas or odor, and is thus superior in a sanitary point of view, and when brought into general use it will be a great favorite for culinary purposes. It contains no destructive elements, leaves very little ash, no clinkers, and produces no more erosive effects on stoves, grates, or steam boilers, than dry wood. If exposed in the open air it is apt to crumble, but if protected it receives no special injury. The connection of the lignite deposits on the Upper Missouri has been traced uninterruptedly to the North Platte, about 80 miles above Fort Laramie. The geological age of these Western lignites is undoubtedly Tertiary. Prof. Lesquereux has furnished valuable notes as the result of his preliminary examination of the fossil plants in the lignite deposits, which confirm this view of their age. Mr. Hayden says all evidence seems to indicate that there are no valuable beds of lignite west of the Mississippi in formations older than the Tertiary; and that all the lignite tertiary beds of the West are but fragments of one great basin, interrupted here and there by the upheaval of mountain chains, or concealed by the deposition of newer formations.

BUTYRIC ACID IN GLYCERINE.—Glycerine separated from most fats is contaminated with butyric acid. Its presence, according to H. Perutz, may be easily recognized by distilling the glycerine with some sulphuric acid and alcohol, by which means butyric ether will be obtained and at once identified by the pineapple odor. On the large scale, the butyric acid may be separated by filtering the glycerine through animal charcoal. The acid will be retained in combination with lime, and the butyrate of lime may afterwards be extracted by alcohol, and the solution, on distillation with sulphuric acid, will give pineapple essence in commercial quantities at a cheap rate; or the butyrate of lime may be decomposed by the addition of oxalic acid, and the butyric acid purified by distillation.

IRON IN VARIEGATED STRATA.—At a recent meeting of the Geological Society of London, reported by the *Colliery Guardian*, a paper upon this subject was read by Geo. Maw, Esq., F. G. S. The conclusions at which the author had arrived were the following:

That the assumed production of the coloring matter of red beds from the decomposition of iron pyrites appears untenable. (2) That the bleaching of red beds by the reducing action of fossil carbonaceous matter will not account for the facts of variegation. (3) That this bleaching and nearly every form of variegation of red beds are caused by the passage of iron from the discolored areas unaccompanied by any change of combination, excepting the invariable conversion of the anhydrous into the hydrated peroxide. (4) That the arrangement of the iron has not been produced by solution. (5) That it has in some cases been produced by a variety of evident conditions independent of mere chemical reaction, while in other cases it seems to have occurred arbitrarily. (6) That it is unaccompanied by any other change in the combination or position of the constituents of the stratum, and appears to be wholly independent of its chemical constitution, any simple chemical theory being, in short, insufficient to account for the movement of the iron. (7) That the motion has sometimes taken place centripetally and sometimes centrifugally. (8) That the partial conversion of the carbonate of protoxide of iron into hydrated peroxide is one of the most frequent purely chemical causes of variegation. Other causes are the conversion of the red anhydrous into the yellow hydrated peroxide; the secondary formation of the disulphide and the several stages of its decomposition in mechanical association with the peroxide; and, lastly, the infiltration of limo and magnesia into red beds. (9) That some of the more complicated forms are due partly to segregation and partly to changes of combination. (10) That the ferruginous banding of yellow sandstones is the result of the segregation of the hydrous peroxide of iron into lines which are invariably adjacent to a bleached part of the stratum over which they appear to have advanced, gathering up the peroxide of iron in their course, and leaving behind them a depleted area.

COLORING OF ZINC PLATES.—The *Annual of Scientific Discovery* for 1868 has the following: A variety of beautiful colors, corresponding to those of the rainbow, can be imparted to zinc surfaces by a simple chemical application continued a length of time proper for the desired color. It is necessary that the metal be pure, and especially free from lead. It is therefore to be rubbed with silicious sand moistened with hydrochloric acid, then dipped in water and rubbed vigorously with blotting paper. The zinc is then immersed in a solution of 3 parts by weight of dry tartrate of copper in 4 parts caustic soda, with 48 parts distilled water, the whole at a temperature of about 50° Fah. The colors will appear successively, in the prismatic order, according to the period of immersion. In two minutes the violet will appear; in three, dark blue; in four and a-half, a dark yellow; in eight and a-half, a red purple. Intermediate terms give intermediate tints. When colored, the zinc is well washed with water, and for greater permanence of color may be varnished.

COTTON WAX.—Mr. E. Schunck, in a paper read before the Manchester Literary and Philosophical Society, "on some of the constituents of cotton fiber," describes the organic substances obtained by him from unspun cotton yarn, the most interesting of which was a waxy matter, insoluble in water, but soluble in ether and alcohol. If a concentrated solution in boiling alcohol be allowed to cool, the greatest part is deposited, causing the liquid to assume the appearance of a thick white jelly, consisting of microscopic needles or scales. When this jelly is filtered off and dried it shrinks very much, and is converted into a coherent cake, which has a waxy luster, and is translucent, friable, and lighter than water. Its melting point is between 83° and 84° C. At a higher temperature it is volatilized. When heated on platinum it burns with a bright flame. The author thinks it probable that this substance covers the cotton fibers with a thin waxy film, and this imparts to them their well known property of resisting water. In its properties and composition it approaches very nearly the vegetable waxes, such as those found on the leaves of the sugar cane and of the carnauba palm. He proposed the name of cotton wax, to distinguish it from the other nearly allied bodies.

New Patents and Inventions.

Under this heading we shall mention, from week to week as occasion may demand New and Important Inventions; also, the List of Patent Claims recently issued from the U. S. Patent Office to inventors on the Pacific Coast, and other Patent Issues which we deem of local interest to readers on this side of the Continent. Most Patents on this coast are secured through the MINING AND SCIENTIFIC PRESS PATENT AGENCY. We are prepared to obtain from Washington, with despatch, copies of any Patent issued.

List of patents issued from the United States Patent Office for the Pacific Coast and Territories for the week ending May 19th, 1868, which will be further noticed hereafter:

IMPROVEMENT IN PARLOR SKATES.—Robert Hewson, San Francisco, Cal.

IMPROVED EXPLOSIVE COMPOUND.—Alfred Nobel, of Hamburg, Germany, assignor to Julius Bandmann, San Francisco, Cal.

IMPROVEMENT IN BOOTS AND SHOES.—Nicholas Lumsden, San Francisco, Cal.

IMPROVED METHOD OF MOUNTING THE CUTTERS OF ROTARY PLOWS.—Philander H. Standish, of Martinez, Cal.

IMPROVED OINTMENT.—Henrietta T. Wood, San Francisco, Cal.

DESTON.—FOR A WATER CLOSET RECEIVER. Wm. Smith, San Francisco, Cal.

NOTICES OF PATENTS RECENTLY ISSUED.

77,787.—IMPROVED TRUNK LID SUPPORTER. Samuel Wehrly, San Francisco, Cal.:

1. I claim the spring B, having a hole *a*, near its upper end for the purpose of receiving the point D, substantially as described.

2. The catch E, having a point D, formed by making a slot on its top, substantially as and for the purposes described.

The objection of this invention is to provide a convenient supporter for trunk and other hinged lids, so constructed that it will not interfere with the general arrangement of the trunk or other receptacle on which it may be placed, and which will serve to prevent the lid, when open, from falling, and thereby injuring or inconveniencing any person who may be engaged at the trunk. To accomplish this the inventor employs a spring, made of any thin piece of metal, long enough to reach from near the center of the back side of the trunk to an inch or so above its top. This spring is fastened to the back of the trunk, near the center, and has in the end which extends above the trunk a hole pierced sufficiently large to admit a catch. This catch is composed of a piece of metal, fastened to the back side of the lid, just above the spring, having one end projecting towards the top of the spring, and entering the hole where the trunk is open. A slot in the end of the catch engages the spring, and prevents the lid from falling either forward or backward. This device is simple, automatic in its action, and perfectly reliable. The trunk lid is secured from falling by the simple raising of it to a perpendicular position. All that is necessary in closing it is to use a slightly greater amount of force than is usually required in bringing down the lid from its perpendicular position.

78,080.—IMPROVEMENT IN CULTIVATORS.—Henry A. Gaston, Stockton, Cal.:

I claim, in combination with an inclined reversible bit for a cultivator, the method of securing such bit to its standard, substantially as described.

I also claim the combination of the series of bits (so applied to their vertical standards) with the cultivator frame or carriage, substantially as described.

78,089.—IMPROVED CONCENTRATOR.—Joshua Hendy, San Francisco, Cal.:

1. I claim the annular groove I, declining from a certain point to an opposite or discharging point in combination with a vibrating or oscillating pan or concentrator whose surface is convex or curvilinear as described.

2. The discharge valve or gate M, when constructed and arranged to operate substantially as described.

3. The T shaped distributors K, K, pierced with holes b, b, b, and having slots b', b', said distributors being either stationary or movable, and when movable the notched edge c, c, c, with pawls or their equivalents d, d, d, operating therein for driving the said distributors substantially as and for the purpose described.

4. The agitators or stirrers a, a, a, attached to stationary or movable radial arms I', I', or their equivalents with an oscillating pan as described.

5. The peculiar construction of the frame A, A, it being triangular in form, the pro-

jecting ends B, B, for the crank shaft, the point A', in combination with an oscillating pan, substantially as described.

6. The overreaching supports or braces F, F, connecting at the point F', and in which the upper end of the vertical shaft turns in combination with the frame A, A, with the projecting ends B, B, and oscillating pan substantially as described.

7. The peculiar construction of the ball-crank pin N', when employed on an oscillating pan, substantially as described.

8. The oil groove H, either in the hub of the pan on the shaft G, and the oil cavity T, above the hopper for lubricating the sleeve and step with an oscillating pan substantially as described.

This invention is an improvement on the present well known Hendy Concentrator, and consists in constructing the pan with a groove around the inner periphery, which gradually declines from a given point to the opposite or discharging point; it also relates to a distributor or distributors and stirrers, which are operated by the same power that moves the pan, and through which the pulp passes into the pan, the heavier particles settling in the annular groove, displacing the lighter particles of sand by their gravity, and the centrifugal force, while the current of water and the sand and debris tend towards the center discharge opening, as in the pan as heretofore constructed. This improvement also comprises a self-discharging apparatus, and the peculiar construction of the crank-pin attachment, which accommodates itself to the circular line of the oscillators of the pan. The construction and disposition of the frame and braces to a pan of this construction, are such that much strength is obtained with less amount of material, rendering the machine more easily transportable to remote districts; the frame and supports are also out of the way of the movements of the pan and operators. The claims rehearsed above will give the reader some idea of the extent of the improvements secured by this patent.

78,093.—IMPROVED MACHINE FOR POLISHING WOOD.—Henry O. Hooper, Diamond Springs, Cal.

I claim the circular rotary polishing plates E, and the reciprocating polishing plates H, arranged with and attached to the adjustable framing B', all constructed to operate as described for the purpose specified.

78,111.—IMPROVEMENT IN GANO PLOWS.—Geo. W. Manuel, San Francisco, Cal.:

I claim the arrangement of the crank-arms d, e, f, under the hounds or bars, and in their relation thereto as and for the purposes set forth.

2. In a gang plow having a series of plows arranged on bars or hounds parallel to each other, I claim placing the one plow on the bar g, outside of the wheel a, and in front of the axle, as and for the purposes recited.

3. The combination of the extended crank arms d, and e, with the lever l, and curved bar o, as and for the purposes herein set forth.

4. The crank screw r, and plates s and t, for elevating and depressing the tongue as described.

78,141.—IMPROVEMENT IN TIRE TIGHTENER. Silas Shirley, Santa Clara, Cal.:

I claim, in the tip B, having sockets for the felloes, the covers F, F, substantially as and for the purpose herein described.

This improvement consists in an improved device for regulating the set of wagon tires, so that they can be easily made to fit closely when the wheel becomes dry, or they may be slackened, if so tight as to warp and alter the shape of the wheel, the whole work being easily done by the teamster without either taking off or cutting the tire. This is accomplished by placing upon the end of one of the spokes a metal tip or hollow block, which is shaped so as to conform to the outline of the spoke and not mar the symmetry of the wheel. This tip admits at each end, in the direction of the circumference of the wheel, the ends of the adjoining felloes, where they are firmly held in a socket. Within this tip is placed a right and left screw, so adjusted that it may be operated in such a manner as to spread or contract the tip, as it is turned one way or the other. If the tire "blows," the tip can be readily contracted

so as to reduce the circumference of the felloes to properly fit the diameter of the tire. Again, if the wheel shrinks so as to render the tire loose, the screw is turned in the opposite direction and the circumference of the wheel enlarged, so as to fit closely to the tire. The device is so constructed as to be readily operated, without in any way injuring the symmetry of the wheel.

78,317.—IMPROVED EXPLOSIVE COMPOUND. Alfred Nobel, Hamburg, Germany, assignor to Julius Bandmann, San Francisco, Cal.:

I claim the composition of matter made substantially of the ingredients and in the manner and for the purposes set forth.

78,400.—IMPROVED METHOD OF MOUNTING THE CUTTERS OF ROTARY PLOWS.—P. H. Standish, Martinez, Cal., assignor to himself and O. C. Coffin.

1. I claim the revolving hubs, E, E, and the supporters, F, F, constructed and operating substantially as and for the purpose described.

2. I claim a flexible or yielding arm, having the spring G, or its equivalent, together with the rotary-cutter, substantially as and for the purpose described.

This invention relates to an improvement of the Standish steam plow, but is applicable as well to all rotary plows. It consists of an improved method of mounting the rotating knives or cutters so that the plow can be more readily operated in rough or stony land without breaking them. This is accomplished by making the cutters flexible, or yielding. For this purpose a number of arms are attached to the bottom of a vertical driving-shaft, these arms turning on a horizontal plane. At the extremities of these arms are attached stout hubs of iron, turning on horizontal axes. Through these hubs the cutters pass vertically, and in soil which contains but few stones they are held by a supporting-piece of cast iron, which is strong enough for ordinary work, but which breaks off if the cutter strikes a stone—thus allowing the hub to revolve backward until the cutter has passed over the stone, when a new support is attached. If the land is very stony, the cutter is mounted upon a hub in the same manner, but is held in place by a spring sufficiently stiff to keep it to its work in the soil, but which will allow it to turn back by contact with a stone.

78,409.—IMPROVED OINTMENT.—Henrietta T. Wood, San Francisco, Cal.:

I claim the above described composition for ointment, made of the ingredients enumerated, mixed or compounded, in about the proportions specified.

The object of this invention is to provide an improved ointment for cuts, wounds, bruises, burns, chapped hands, etc. This ointment has been prepared by the patentee, and used by her in medical practice, with much success, for several years.

THE YOSEMITE GRANT.—This valuable gift to California is, after all, not likely to be turned over to private individuals. Even if the Commissioners had not made their protest to Congress, that body would not have confirmed the action of the Legislature, because the proper forms were not observed throughout. It now appears that, although the bill was passed over the Governor's veto by both houses, it was never afterwards sent to the Secretary of State, as the law requires, with the certificates of the presiding officers to the fact that it had so passed by the requisite number of votes. "Somebody blundered" here, as the *Bulletin* says, to good effect; and the next Legislature will probably settle with those who have been in good faith occupying the land, by an appropriation of money.

IMMIGRATION FROM THE COTTON STATES. The steamer which arrived on Saturday last brought three gentlemen from the Southern States, who have been deputed by associations of persons desiring to settle on the Pacific Coast, to report upon the advantages offered by California for such settlement. They will first visit the southern counties. An Oakland gentleman, formerly a resident of the South, has received a letter from his old home, stating that at least twenty thousand people will leave for California during the present year.

A 6,000-POUNDER CANNON.—An English inventor has recently patented an enormous gun of 32-inch bore, and capable of throwing a 6,000-pound shot! The bore of this monster gun is 30 feet in length. Of course, such a gun could not be fired with powder, as the initial force required to overcome the inertia of such a heavy ball would be entirely beyond the power of resistance which the metal of the gun could offer. To obviate this difficulty, the inventor constructs his monster cannon on the principle of the air-gun. He proposes to condense his air to a density which will be equivalent to a pressure of 10,000 pounds to the inch. The chamber, instead of being placed in the rear of the ball, is contained in a large casing or jacket formed around nearly the entire length of the bore of the gun, and the valves by which it is admitted to the bore are operated by the ball itself during its exit. The gun is discharged by pumping a small quantity of high-pressure air into the rear of the ball, just enough to start it past the first port, when the stored-up air does the rest of the work. The initial force of 10,000 pounds pressure is gradually diminished to 5,000 at the moment of the exit of the ball, which is equivalent to driving the ball at a rate of about 13,000 ft. per second, which is a little under the velocity required in the usual ordnance. *Engineering*, in alluding to the invention, says: "Although there may be certain practical difficulties in carrying out the scheme, it promises great interest, and we shall look with much curiosity to its practical realization."

EARTHQUAKE WAVES.—The late convulsions at the Sandwich Islands were preceded by an earthquake wave, which made itself felt on this coast, and was duly recorded on the Government self-registering tide-gauges at San Diego and Astoria, as well as in this city, in about five hours' time. In 1854, such a wave was transmitted from Japan in about twelve and a half hours. The rate in each case was therefore about four hundred miles per hour.

PHOTOGRAPHING THE INTERIOR OF A TUNNEL.—Mr. Evans has presented to the New York Institute of Engineers, a photograph of the high level tunnel of the Central Pacific Railroad. The east end of the tunnel being sometimes illuminated at sunrise, a large mirror was employed to reflect the sun's rays equally over the whole of the interior, while the picture was being photographed. The plate having been exposed about fifteen minutes, a print was taken showing every detail, even to the timbering of the drifted headings, with great distinctness and accuracy.

PROF. CHAS. S. PAGE.—This gentleman, who has been for many years connected with the U. S. Patent Office, in the capacity of chief examiner of philosophical instruments, died on May 5th. He was the inventor of an electro-magnetic motive-power engine, which attracted some attention twenty years ago. He made important discoveries in electro-magnetism.

A NEW LETTER-PRESS COPY-BOOK has appeared in Philadelphia, with which a copy of a manuscript may be taken by merely placing it under a leaf and passing the hand over it. The ink used has a certain chemical relation to the paper of the book. No press, no brush, no water, and no patience are necessary.

If any of our readers overlooked the card of the Women's Coöperative Union, in our last issue, they will do well to look it up, but better still to call at the store, No. 39 Second street, and take a look at the goods.

TO CLEAN A BRASS CLOCK.—Boil it whole. The water used should be pure rain-water. Dry on a warm stove to prevent subsequent rusting. This plan saves trouble, and works well when the only trouble is accumulated dirt, or thickened oil.

Fluctuations in Leading Mining Shares for the past Six Months.

NAME OF COMPANY.	Dec. 10th.	Dec. 20th.	Dec. 30th.	Jan. 10th.	Jan. 20th.	Jan. 30th.	Feb. 10th.	Feb. 20th.	Feb. 28th.	March 10th.	March 20th.	March 30th.	April 10th.	April 20th.	April 30th.	May 10th.	May 20th.	May 30th.
Gould & Curry, per ft.	315	350	351	310	310	335	435	435	665	620	670	650	660	660	635	540	420	450
Ophir, per ft.	50	67 1/2	67 1/2	60	70	65	65	190	168	195	197 1/2	225	245	180	175	167 1/2	167	180
Savage, per ft.	104	122	116 1/2	122	128	190	145	190	189	172	170	175 1/2	177	156	153	166 1/2	151	164 1/2
Chollar-Potosi, per ft.	135	151 1/2	145	151 1/2	215	3,400	191	225	210	182 1/2	269	263	337 1/2	290	225	274 1/2	230	245
Hale & Norcross, per ft.	880	1,160	1,240	2,300	2,350	4,100	...	...	...	2,400	2,700	2,300	2,425	2,700	2,100	1,275 1/2	110	105
Nichols, per ft.
Imperial, per ft.
Wide West, per ft.
Real del Monte, per ft.	17 1/2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
El Dorado, per ft.
Overman, per ft.
Sierra Nevada, per ft.
Yellow Jacket, per ft.
Amador, per ft.
Lady Bryan, per ft.
North American, per ft.
Baltimore American, per ft.
Melones, per ft.
Sacramento, per ft.
Imperial, per ft.
Crown Point, per ft.
Belcher, per ft.
Alphine, per ft.
Empire M. and M. Co., per ft.
Confidence, per ft.
Justice and Independent, per ft.
Excelsior, per ft.
Kentuck, per ft.
Gold Hill Q. M. Co., per ft.
Consolidated Belcher, per ft.

MINING STOCKS—WASHOE DISTRICT.

Alphine, per ft.	26	26
Baltimore American, per ft.	175	175
Belcher, per ft.	175	175
Bullion, G. H., per ft.	175	175
Crown Point, per ft.	175	175
Confidence, per ft.	175	175
Chollar-Potosi, per ft.	247	210
Danely, per ft.	7	7 1/2
Excelsior, per ft.	27	30
Empire Mill and Mining Co., per ft.	191	203
Hale & Curry, per ft.	105	105
Gold Hill Quartz, per ft.	85	85
Hale & Norcross, per ft.	162	165
Kentuck, per ft.	375	380
Lady Bryan, per ft.	22	31
Imperial, per ft.	70	71
Overman, per ft.	152	151
Savage, per ft.	152	151
Sierra Nevada, per ft.	24	25
Yellow Jacket, per ft.	124	125
Oolden Rule, California, per ft.	10	10

San Francisco Market Rates.

Wholesale Prices.

Flour, Extra, per bbl.	5.50	5.50
Do, Superfine, per bbl.	5.50	5.50
Corn Meal, per 100 lbs.	3.00	3.00
Wheat, per 100 lbs.	2.05	2.05
Barley, per 100 lbs.	1.65	1.65
Beans, per 100 lbs.	2.50	2.50
Potatoes, per 100 lbs.	8.00	8.00
Hay, per 100 lbs.	9.00	9.00
Live Oak Wood, per cord	9.00	9.00
Beef, extra, dressed, per lb.	8	10
Sheep, on foot, per lb.	3.00	3.00
Hogs, on foot, per lb.	1 1/2	7
Hugs, dressed, per lb.	6	8

GROCERIES, ETC.

Sugar, crushed, per lb.	14 1/2	15
Do, China, per lb.	10	11 1/2
Coffee, Costa Rica, per lb.	12	12
Do, Rio, per lb.	12	12
Tea, Japan, per lb.	65	85
Do, Green, per lb.	60	124
Hawaiian Rice, per lb.	12	12
China Rice, per lb.	5	6 1/2
Coal Oil, per gallon	40	45
Candles, per lb.	15	15
Butter, California, per lb.	15	15
Isthmus Butter, per lb.	17	32
Cheese, California, per lb.	13	14
Eggs, per dozen	13	15
Ham and Bacon, per lb.	12	16
Shoulders, per lb.	9	10

Retail Prices.

Butter, California, fresh, per lb.	35	40
Do, pickled, per lb.	26	25
Coffee, Oregon, per lb.	15	25
Do, New York, per lb.	35	40
Cheese, per lb.	20	25
Eggs, per dozen	45	51
Lard, per lb.	15	17
Ham and Bacon, per lb.	23	25
Potatoes, per lb.	75	160
Potatoes, Sweet, per lb.	2	3
Tomatoes, per lb.	1	5
Apples, No. 1, per lb.	4	5
Pears, Table, per lb.	1	7
Plums, dried, per lb.	10	11
Oranges, per dozen	50	50
Lemons, per dozen	50	50
Apples, per lb.	20	25
Turkey, per lb.	7	12
Soap, Pale and G. O., per lb.	7	12
Soap, Castile, per lb.	15	16

San Francisco Metal Market.

PRICES FOR INVOICES.

Jobbing prices rule from ten to fifteen per cent. higher than the following quotations.

IRON.—Duty: Pig, 90 per ton; Railroad, 60 per 100 lbs; Bar, 1 1/2 per lb; Sheet, polished, 3c per lb; common, 1 1/2 per lb; Plate, 1 1/2 per lb; Pipes, 1 1/2 per lb; Galvanized, 2 1/2 per lb.

Scotch and English Pig Iron, per ton	\$45 00	\$47 50
White Pig Iron, per ton	47 50	50 00
Refined Bar, bad assortment, per lb.	—	02 1/2
Refined Bar, good assortment, per lb.	—	02 1/2
Boiler, No. 1 to 4, per lb.	—	03 1/2
Sheet, No. 10 to 13, per lb.	—	03 1/2
Sheet, No. 14 to 20, per lb.	—	04
Sheet, No. 21 to 27, per lb.	—	04
COPPER.—Duty: Sheathing, 3 1/2 per lb; Pig and Bar, 2 1/2 per lb.		
Sheathing, per lb.	—	30
Copper, Yellow, per lb.	—	22
Sheathing, Old Yellow, per lb.	—	11
Bolts, per lb.	—	21
Composition Balls, per lb.	—	21
PLATES.—Duty: 25 per cent. ad valorem.		
Plates, Charcoal, 1X, per box	12 50	13 00
Plates, 10 Charcoal, per box	11 00	11 00
Roofing Plates, per box	10 50	11 00
Bacon Tin, Slabs, per lb.	10	30
FRANK.—English Cast Steel, per lb.	10	12 1/2
QUICKSILVER, per lb.	65	60
LEAD.—Pig, per lb.	7 1/2	8
Sheet, per lb.	11	11
Pipe, per lb.	11	11
Bar, per lb.	9	9 1/2
ZINC.—Sheet, per lb.	20	20
BORAX.—California, per lb.	20	23

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

ALTA SQUARE HOMESTEAD ASSOCIATION. June 16th. Capital Stock, \$23,100; 44 shares, \$525 each. Trustees: G. S. Ladd, A. J. Jeghers, Charles Reading, Charles E. Gibbs, and T. B. Wilde.

NEVADA CONS. B. G. Co.—June 16. Capital Stock, \$925,000; 18,500 shares, \$50 each. Trustees: J. S. Silver, Jas. P. Dean, P. C. Lander, Geo. Hearst, and Fred. McCrellish.

EUREKA G. M. Co.—June 17. Capital Stock, \$1,200,000; 4,000 shares, \$300 each. Trustees: W. Watt, A. J. Pope, G. W. Beaver, M. Buckley, and A. E. Head.

ELECTION OF OFFICERS.—Yosemite Consolidated M. Co.—June 9th. Trustees, R. L. Bampton, Peter Bradow, Robert Stuart, Wm. K. Squires; President, R. L. Bampton; Secretary and Treasurer, David Wilder; Superintendent, Peter Bradow.

ENTERPRISE G. & S. M. Co.—June 3d. Trustees: A. DeLand, E. B. Mott, Jr., H. Pomeroy, James Paul, and Wm. P. May. President, A. DeLand; Secretary, Wm. P. May; Treasurer, E. B. Mott, Jr.

SANTA CATALINA.—James Lick, of San Francisco has been confirmed in his possession of the island of Santa Catalina.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING, June 20, 1893.

CITY STOCKS.

In miscellaneous stocks little has been done during the past week. Sales of Pacific Bank stock have been made at 95@97 1/2 per cent.; Pacific Insurances at \$120; Central Railroad at \$50, and North Beach and Mission Railroad at \$64@64 50. The California Steam Navigation Company paid its usual monthly dividend on the 15th inst. The annual meeting of the Omnibus Railroad Company will be held on the 6th day of July next. At this close, San Francisco Gas sold at \$80.

We learn that the receipts of the San Francisco and Oakland Railroad Company during the month of May amounted to \$23,227 against \$12,430 same time in 1892. This is a very marked increase in one year, and fully proves the rapid strides Oakland has made within that period. There is a constant increase of population to Oakland from this city of persons in business here, who make the trip every day, and with improved facilities, such as shortening the passage, etc., family residences across the bay will be still more desirable by our mercantile community.

Mining Share Market.

Since our previous review of the mining share market, the depression has been carried to a still lower point, and as a general thing the market lacks vitality. The present condition of some of the mines does not seem to warrant the prices at which they have been held, and in their fall is involved the recession of others which have more intrinsic value, and fairer future prospects. It seems that most dealers in stocks look too much to the prospective value of claims instead of basing their calculations upon the present and better understood worth of their investments. In this view some stocks have commanded prices far above their real value. The delay of favorable developments in the lower levels of the several claims has more than anything else tended to hasten the decline, and until such developments are made we cannot look for a very buoyant market. As a rule, though, when stocks are down outside dealers stand aloof, and when they rise—even when they have reached largely inflated prices—the desire to invest seems to be strongest. These extremes produce the disastrous effects in our stock market. The diversion of capital to other channels of investment also adds its influence to produce the prevailing apathy. At the close, a somewhat better feeling prevails.

SAVAGE—has been moderately active, improving from \$148 50 to \$156 50, dropping to \$146, and at the close selling at \$153. During the week ending June 15th, 1,730 tons of ore were extracted, showing an average assay value of \$49 90 per ton; previous week, the product amounted to 1,768 tons, valued at \$47 24 per ton. The south mine, on the fourth station, for the week under review, contributed 1,117 tons, and the ore on the fifth, sixth and seventh floors in this locality is more abundant than was supposed, the average value of the third-class ore having improved over the product of previous weeks. A west cross-cut on the sill floor, about sixty feet from the south line, has developed three feet of good ore, the same being about twelve feet west of the main body. The south drift from the fifth station is reported to continue in good ore, and at the foot of winze the breasts are said to open out well. The work of retimbering the shaft below the fifth station progresses well, and does not interfere with the production of the mine, only causing delay in opening the sixth station. Receipts of bullion to date for June account foot up \$124,600.

IMPERIAL—has been somewhat more active than the previous week, and experienced a material decline, falling from \$204 to \$145, and at the close realizing \$162. The operations in the lower drift show a progress of twelve feet in the vein matter up to the 16th inst., and in which some traces of silver are found. It is thought that they will have to run some twenty feet further to find ore, and probably will have to raise toward the 700 level for that purpose. The Alta shaft is now being repaired below the 400 level, preparatory to sinking winze in the vein from the 700 level. It is very much out of repair, and it will take a month's work before they can hoist through it. The prospects for an average yield of bullion the present month are very fair. On the morning of the 19th inst., the drift presented a more favorable appearance, having advanced five feet within the previous twenty-four hours, and showing seams of ore in the face. A dividend of \$6 per share is payable to-day. The annual meeting of stockholders takes place on Tuesday, the 30th inst. The shipment of bullion to date for June reach \$22,961 68.

CROWN POINT—was less active, selling at \$103 50@107, declining to \$97 50, and at the close selling at \$99 50. The south drift on the 800 level is now upwards of 170 feet from the Kentuck line, showing five feet of ore in the face. Above the 800 level the floors are looking well. This winze from 800 level is down some eighteen feet, and the whole area is said to be in excellent ore. There is also a noticeable improvement in the middle and west bodies on the sixth and seventh levels, and from these localities they expect to obtain an increased supply of ore. The receipts of bullion to date, for the current month, aggregate \$41,026 27. The \$18,000 stated in our last issue to have been received by the Kentuck Company should have been credited to this company. A late dispatch says this winze from 800 level shows five feet of \$40 ore at the bottom. Shaft is eighty feet in depth below 800 level.

KENTUCK—met with the usual sales, opening at \$365@370, declining to \$350, and closing at \$375. The usual amount of ore continues to be taken from this mine. Work on the shaft progresses slowly. Receipts of bullion to date, for the current month, amount to \$35,012 06. **GOLD HILL QUARTZ** sold at \$107 50@85, and closed at \$82. The 450 level is said to yield a better quality of ore, but not so large a quantity. The first bullion returns for June amounted to \$2,918 16, and they usually have four clean-ups in a month.

HALE & NORCROSS—experienced a serious decline within the past week, selling from \$117 50 to \$57 50, and at the close selling at \$70 50. On the 18th inst., they had penetrated the ledge some six feet, and passed through two feet of ore, which is not considered encouraging; however, beyond this they may strike it in large and paying quantities. **CONFIDENCE** is dull of sale. Our quotations are \$30 bid and \$40 asked. On the 13th inst., \$44 15 in bullion was sent forward, being the product of 200 tons of ore. They extract about fifteen tons of ore per day.

AMADOR—was in the market at \$245@265. The first run for the present month shows a bullion product of about \$24,000, of which only twenty tons were Badger rock. The Badger shaft has been increased in depth upwards of seventy feet, and reveals a very fine ledge.

CHOLLAR-POTOSI—declined from \$283 to \$220, and closed at \$247. Commenced opening the seventh station on the 8th of June. The incline is 271 feet in depth, and 1,121 1/2 feet—perpendicular measurement. During week ending June 12th, extracted 652 tons from the Blue Wing section; 600 1/2 tons were sent to custom mills during the same period. Nothing of importance from the mine. **ORION** sold at \$14@12, and closed at \$12 1/2. The new shaft is timbered to the depth of 297 feet. An assessment of \$4 per share was levied on the 15th inst. The Bacon Mill and Mining Company declared a dividend of \$2 per share, payable since the 19th inst.

COLE (VA.)—This stock sold at \$40@25, and closed at \$32. In the 200-foot tunnel, carried in some years ago, at a point 120 feet from the surface, they have found a vein four feet wide, in which they have sunk some seven feet. They have extracted some very rich ore lately, and have some fifteen tons that will mill, according to assay, \$500 to the ton. Will commence hauling ore to the mill on the 22d. The dump contains about 200 tons of pay ore.

The sales in the Board during the past week have been as follows: Regular, 266,455; open sessions, \$477,920—Total, \$2,164,405, against \$2,421,888 in the previous week.

WOODWARD'S GARDENS.—Notwithstanding the numerous picnics to rural regions, by rail and steamer, large numbers are drawn to Woodward's Gardens by the great attractions afforded. In addition to the varied natural beauties, curiosities, animals and artistic works, this garden affords rustic retreats and sylvan bowers, to be found in no other place about San Francisco. Photographic Rocks still on exhibition. *Sunday Mercury.*

ALL the diamond cutting in this country is done by one firm in Boston, and their business is confined to the re-cutting of stones which have been nicked or otherwise rendered imperfect.

Work upon the Mechanics' Fair Building is progressing rapidly. The side and rear walls are up, and quite a number of the arches designed for supporting the roof are already in place.

MINING SHAREHOLDERS' DIRECTORY.

[Compiled for every issue, from advertisements in the MINING AND SCIENTIFIC PRESS and other San Francisco Journals.]

Comprising the Names of Companies, District or County of Location; Amount and date of Assessment; Date of Meeting of Shareholders; and Amount and Date of Payment of Dividends.

NAME, LOCATION, AMOUNT, AND DATE OF ASSESSMENT.	DAY OF DELINQUENCY.	DAY OF ASSESSMENT.
Anollo, Lander co., Nev. June 15, \$10.	July 17—Aug. 3.	
Adriatic, Storey co., Nev. May 21, \$1.	June 30—July 15.	
Adelia, Sierra co., May 13, \$1.	June 19—July 4.	
Amador Co., dividend, \$6 per share.	Payable May 7.	
Bacon, Storey co., Nev. div.	Payable June 19.	
River River, Nevada co., June 10, \$1.	July 15—Aug. 3.	
Bullion, Storey co., May 25, \$10.	payable immediately.	
Crown Point, dividend, \$7.50.	Payable June 12.	
Chilomena, Mexico, May 11, \$5.	June 18—July 6.	
Chalk Mt., Nevada co., March 16, \$1.50.	May 12—July 6.	
Eelipse, Lander co., Nev. June 15, \$10.	July 17—Aug. 3.	
El Tesoro, Mex. June 13, 25c.	July 20—August 16.	
Empire M. & M., Nev., dividend \$6.	Payable May 15.	
Focus, Amador co., June 3, \$5.	July 11—July 28.	
Florida Glacier, Plumas co., May 8, 50c.	June 25—July 19.	
Gold Hill Tunnel, Storey co.	Annual Meeting July 18.	
Gold Hill of M & M—dividend, \$7.50.	Payable June 12.	
Globe, Alpine co.	Annual Meeting June 19.	
Globe, Alpine co., May 25, \$2.	June 30—July 15.	
Globe, Lyon co., May 19, \$1.	June 24—July 10.	
Golden Rule, Tuolumne co., div. 50c p sh.	Payable June 12.	
Hope Gravel, Nevada co., June 18, \$1.	July 22—Aug. 1.	
Imperial, Storey co., Nev. div.	Payable June 19.	
Imperial, Storey co., Nev.	Annual Meeting June 19.	
I X L, Alpine co., May 4, \$1.50.	June 13—July 1.	
Kanaka, May 30, 40c.	July 8—July 19.	
Kentuck, div., \$5 per share.	Payable March 15.	
La Vieolre, Mariposa co.	Meeting July 19.	
Lady Bryan, Storey co., May 26, \$1.	July 6—July 19.	
Lady Bryan, Storey co., Nev. May 2, \$10, payable name!	July 19—Aug. 3.	
North Star, dividend, \$5.	Payable June 19.	
Ophir, Storey co., Nev. June 15, \$1.	July 20—August 16.	
Osecoia, May 25, 50c.	Payable immediately.	
Overmin, Storey co., Nev. May 13, \$2.	June 22—July 6.	
Old Colony, Lander co., Nev., May 12, \$5.	June 20—July 4.	
Pacific Unassessable, div.	Payable June 19.	
Providence.	Annual Meeting June 3.	
Roanalse.	Annual Meeting July 19.	
Rogers, Storey co., Nev., May 14, \$1.	June 16—July 4.	
Santiago, Silver City, dividend.	Payable June 12.	
Savage, Virginia, Co., dividend, \$10.	Payable June 12.	
Silver City, Storey co., Nev. June 5, 10c.	July 15—July 28.	
Silver Sprout, Inyo co.	Annual Meeting June 3.	
Sand Spring -all, dividend \$1.	Payable June 19.	
Seaton, Amador co., May 12, \$1.	June 19—July 4.	
S. F. Moss Ledge, Arizona, May 2, \$20.	June 5—June 19.	
Seaton, Amador co., April 27, \$100.	June 5—June 30.	
Union, Storey co., Nev. June 2, \$5.	July 7—July 19.	
Virginia & G. H. Water Co.	Dividend, payable May 15.	
Whitman, Lyon co., Nev., May 21, \$10.	June 24—July 10.	
Yosemite, Lander co., Nev. June 9, 75c.	July 16—Aug. 1.	

* Those marked with an asterisk (*) are advertised in the Intelligencer.

Mining Summary.

THE following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Miner, June 6th: The Pittsburg Co. now have good air throughout the works.

The Schenectady Co. are trying to effect a raise of \$80,000 to place them in condition to work the mine and erect reduction works.

The Rippon Co. are encountering some good looking quartz, having struck several small veins. The prospect for a ledge was never better.

An additional force is being worked on the L. X. L. mine. They now have a pay vein of nearly five feet, and are taking out more good ore than at any time heretofore.

In the Morning Star, a drift south from the cross cut on the lower level has opened the finest body of ore yet found.

Chronicle, June 6th: Some two years ago furnaces were erected at the Pioneer Quartz Mill, Markleville, for working by the Rivot process. We learn that two French gentlemen are coming here to give it another trial.

Amador County.

Ledger, June 13th: R. K. McCoy and W. F. Keeney made a faithful search for a traditional rich lead running through Neely's ranch. When out of pocket and nearly exhausted, they "struck it." The first run cleaned up a little less than an ounce a day to the hand, with promise of better to come. Mitchell & Co. have the first south extension of the above. The White claims at Pine Grove, have yielded over \$3,000 up to this time.

The new furnace for sulphurets, at the Coney & Bigelow mine, is rapidly approaching completion. Its capacity is much greater than the old one.

Calaveras County.

San Andreas Register, June 13th: Letter from Copperhead Flat: Smith & McNair's large vein is running day and night, driving one arastra, and crushing from 1,600 pounds to 2,000 pounds every 24 hours. They have another arastra about completed. Ferguson has commenced sinking a new shaft near the eastern boundary of his claim. Billy Smith is driving his tunnel ahead in the Lodi, and taking out some very rich rock. The company have hired a couple of men to sink a shaft to connect with the tunnel. The Central mine, owned by Bean & Lampson, is to commence sinking in a short time. If the rock continues to look as well as it does now, they will never let up. Bean is running his arastra.

Chronicle, June 13th: The Coffee-mill claim, bids fair to turn out good. The company have run a drift several hundred feet through pay dirt. Paul & Co. are driving work upon their mine with spirit. Bates & Co. have a promising looking claim. The dirt prospects well. Bracket & Co. are running a tunnel across the channel to the back rim rock. At present they have but few hands employed, but will increase the force so soon as their tunnel is completed. Markwood & Co. are doing a paying business with their hydraulic in the old Gopher claim.

Smith & Co. have struck a vein of quartz in an abandoned tunnel, in Poor Man's Gulch, from 4½ to six feet in thickness, which prospects well.

We learn from Railroad Flat, that a Mexican struck some rich rock in a ledge one-fourth of a mile from Independence, a few days since.

A company have been prospecting a ledge on the outskirts of the village, by a shaft, which is now about 25 feet deep. At this depth they have a vein, showing quartz that will pay from \$20 to \$60 per ton.

Inyo County.

Gold Hill News, June 8th: In Cerro Gordo District, Alexander Kennedy and others have purchased a large interest in the San Ignacio mine for \$16,000, and are now taking measures to develop it. Charley Duval, from Cerro Gordo, will return in a week with the castings for two first-class furnaces for the Independence mine.

Same of 10th: Charley Hill, foreman of the Kearsarge, has been running a tunnel, cutting the ledge 1,000 feet below the croppings, at which point the vein is between three and four feet. The mill will be put to work shortly. Almarin B. Paul is erecting two roasting furnaces at the Silver Sprout mill, and as soon as the ore can be transported from the mine, will be set at work. The ore is abundant, of a rich quality. The Lafayette mine is also in a prosperous condition, with plenty of good ore out. The company propose milling a quantity of it soon. In Alabama district, some eight or ten miles south of Kearsarge, on the same

side of Owen's River Valley, Thomas Passmore and Wm. Lake have discovered good placer gulch diggings, which yield \$10 a day to the hand. The gold is very fine, being worth \$17 50 per ounce, but the diggings are "spotted."

Mr. Nathaniel Page is on his way to inspect the Kearsarge mine, and start the mill.

Nevada County.

Gazette, June 10th: The "Jim" ledge, located on Little Cañon Creek, near the South Yuba, has a tunnel running upwards into the sidehill, giving fall enough to dispense with pumping or hoisting machinery. The mill has a single battery of six stamps, crushing about ten tons of rock per day. The ledge is over five feet wide.

Same of 12th: We, yesterday, walked out to the Canada Hill sulphuret works, recently erected to work ores by the Rivot process. The furnaces have not yet begun to roast ores, but everything will be ready in six weeks.

16th: The Union Hill mine recently took out a quantity of rock estimated at \$5,000 within a few hours, and seventeen loads of rock from the "7-30" ledge, as we are informed by the Grass Valley Union, yielded \$2,700.

Transcript, June 11th: The Gold Bluff Mining Company sold, on the 4th day of June, their claims on Manzanita Hill, for \$160,000, gold coin.

Work has been resumed on the Mohawk mine, Gold Flat. Mr. Barber is moving the machinery to the bottom of the hill, from which point he will sink an incline.

Holmes, Weston & Co., whose hydraulic claims are at Gopher Point, four miles from this city, have nearly completed their arrangements for a blast of two hundred and twenty-five kegs of gunpowder. They have run a tunnel sixty feet, at the end of which is a cross drift of fifty feet.

A few days since, a vein of quartz was struck on the grade above the Yuba bridge, which promises well. On the surface it was but a small seam, but at the depth of three feet it had become a well defined ledge five inches thick. The rock prospects well.

Grass Valley Union, June 11th: The North Star Company shipped, on Tuesday, \$12,000, after a ten days' run. The Empire mine was yielding magnificent rock on Tuesday. The specimens brought in are among the richest ever seen in Grass Valley. The gold is in beautiful layers all through the rock.

Same of 13th: The Edmonton claims, near the North Star Company's mine, were lately sold to the latter company for the sum of \$30,000. The whole cost of the Edmonton claims to those who recently sold them would not foot up to over \$800.

The report has been current for several days that the Empire mine's pumping machinery had broken down, and that the shafts were filling with water. Yesterday, the damage was repaired by replacing the cracked wheel with a new one, and work went ahead as usual.

The Domesday was taking out yesterday magnificent rock.

Grass Valley National, June 10th: At Delano's bank, this morning, we saw some very rich specimen rock, which was taken out at the Empire mine, on Ophir Hill. The specimens are valued at about \$800, but are only a portion of those taken out of the sixth level, about 620 feet from the surface.

Placer County.

Auburn Herald, June 13th: There has never been so much activity in our quartz mines as at present. The erection of custom mills is being made the means of opening several claims which could not otherwise be worked. The St. Lawrence is running night and day, crushing from 8 to 40 tons of rock during the 24 hours.

Dutch Flat Enquirer, 13th: The success of the Rising Sun Company, at Colfax, has proved a stimulus, and all ledge-owners are making preparations to develop their leads.

The Vermont claim-owners commenced washing yesterday, employing three pipes and 300 inches of water.

Yesterday Messrs. Kelsey & Co. commenced washing in the Jehosephat.

At Gold Run the miners are all very busy.

Plumas County.

From the Quincy Union of June 13th: At Sawpit, the Eagle Company have commenced washing up their pay dirt. The New York Company have finished cleaning up, and on Tuesday last they sold their dust, which is worth about \$18 25 per ounce, to Messrs. Conly & Co., of La Porte, and returned to Sawpit with about \$23,000 in coin.

At Greenhorn, Messrs. Heath & Co. have struck it rich. They made their first clean up, after about twenty days' pipping, one day last week, and took out over \$1,000.

The miners in the vicinity of Twelve

Mile Bar have an abundance of water, and are all doing well. The Halstead Company made a partial clean up, and took out about \$600; they will have water enough to pipe with the whole year. Hyde & Ward on Twelve Mile Bar, finished cleaning up last week; they averaged good wages for all the work done.

Sacramento County.

Folsom Telegraph, June 13th: A miner, named Samuel Spong, who has resided in Clarksville, off and on, for about 15 years, and has been to the mines of Peru, Frazer River, Washoe and Arizona, but always found his way back to Clarksville, struck a rich quartz ledge, not long since, and in a short time took out of decayed quartz \$3,000.

Sierra County.

Downieville Messenger, June 13th: At Sawpit Flat, the Buckeye Company is doing well. The New York Company, in twelve days' time, have taken out over 800 ounces. They expect to get ten or twelve hundred ounces out of their winter's pile of pay dirt. The Union Company are washing their tailings. The Eagle Company are still getting pay dirt. They get from ten to twelve dollars to the pan. Everything looks favorable. They will commence washing next week. The Union and American companies, at Washington Hill, are paying as usual. Six pipping companies have commenced operations—three at Richmond Hill and three in this place—operating night and day.

Council Hill letter: We have struck some new diggings between this and Scales' Diggings, and they are very extensive.

Siskiyou County.

Yreka Union, June 13th: Mooer, Grooms & Co. made a light run, with a little water they managed to get at intervals, in their claim at the lower end of Quartz Mountain, and obtained \$500. They cleaned up no bed rock. Bankey & Co., who have the old Shelley claim, are doing well.

Tuolumne County.

Sonora Democrat, June 13th: The Martin mine, on the North Fork of the Tuolumne, has been recently purchased by Hawes & Sherwood. They cleaned up week before last, and from forty tons of rock obtained ninety-nine ounces of gold. The rock was crushed in an arastra.

At the star mine, last week, a blast was put in the casement wall, at the north end of the lower tunnel, and rock of exceeding richness was exposed. A pump has been rigged to drain the old tunnel, a shaft will be sunk one hundred feet, and a tunnel run from the bottom under the vein.

Trinity County.

Weaverville Journal, June 13th: We are informed that new diggings have been discovered on the South Fork of Trinity, 2,000 feet above the level of the stream. Showers and partner recently took out about \$100 as the result of three days' labor.

Crow's flume over the Trinity below Lewiston is gone, and that portion of the ditch on the north side of the river, together with the water privilege, has been purchased by John Arn.

Wattles, Duff & Co., on Taylor Flat, are running two sets of sluices, and their claims hid fair to yield largely. Pelletreau & Bro. are doing well above the mouth of French Creek. R. B. Martin is getting fine prospects in the hill at the upper end of his ranch. Amos Smith & Co., at Cox's Bar, expect to make a handsome clean-up this season.

Water has been taken through the whole length of Frey & Taylor's new ditch. This work has cost over \$10,000.

Yuba County.

Marysville Appeal, June 13th: The Rattlesnake mine in the last two weeks, has made two runs of about 50 tons each, and the yield is \$25 to the ton, not including gold from the blankets.

ARIZONA.

San Bernardino Guardian, June 6th: Mr. J. R. Frink left here on Thursday last for Wickenburg. He takes with him a quantity of machinery for the Vulture mine. The Chinamen he brought down for employment in the mine, became suddenly alarmed as to their probable fate in Apache land, and skedaddled.

Prescott Miner, May 30th: Messrs. Little & Taylor have quit work for the present, upon their hydraulic claims on Lynx Creek. A scarcity of water was the cause of their stopping. Their last run paid well.

Roddick & Feland, who are prospecting the Chance Lode, are down about 40 feet in the new shaft, at which depth they have a good ledge. The water troubles them a good deal.

The Azlan Mill has been running day and night the past week, and the next clean-up will be a big one. Early in the week six

tons of tailings from the Chloride lode were run through, and yielded ten ounces of good amalgam.

The prospecting party has returned. They searched the Silver Mountain country, and succeeded in finding some rich lodes. At the head of Humbug creek, they prospected for placer diggings, and got as high as fifteen cents to the pan.

COLORADO.

Herald, May 27th: A party of Californians put some snitches in Nevada Gulch, near Quartz Hill last week, and are making good wages. Mr. Horne, in the gulch near the Porter mill, in four days last week took out \$80. Both of these parties are on ground which was supposed worked out years ago.

Borham, Miller & Co. have struck the crevice on claim No. 1 East, Bates or Hunter lode, and are raising a very fine quality of ore.

The Pleasant Valley G. M. Co., are about to commence work on their gulch claims. London & Queen are working in Russell, above the mouth of Illinois, Maguire & Queen above the mouth of Elkhorn, and Ainsworth & Cochran next to the Pleasant Valley Co., in Russell.

Mr. Fiske, of Black Hawk, will resume work on the Davenport lode, Central City district, in a few weeks.

With the Lexington and Stoner at work, every stamp mill but one in Nevada Gulch is now running, as follows: Lexington, 24; Porter, 18; Sykes, 12; Ophir, 24; Philadelphia & Colorado, 25; Stoner, 12; Mansur, 12; New Bedford, 12; Beverly, 12; unknown, 12; in all, 163 stamps, rattling away day and night.

In South Clear Creek, a great deal of gold is being taken out. Wright & Canfield cleaned up 51½ ounces of dust last week on Grass Valley bar, working four men. Brazier & Co. are mining on Chicago bar. Last Friday, they struck a streak of pay, yielding one dollar to the pan. Dick Skinner and "Esus Kris" have shut down temporarily on Illinois bar, in order to put in a new pump. Cooper & Schaffter are at work opposite the mouth of Chicago creek, with a capital prospect. On Spanish bar, considerable mining is being done. Capt. Dean let water into the upper ditch on Grass Valley Hill, yesterday. Griswold & Harder are taking excellent pay from their claim. The general prospect is more cheering than it has been in years.

Register, 28th: The new works being put up on the Winnebago lode, are approaching completion. All the hoisting machinery is in place, and the foundation for the stamps finely laid.

Four different parties are negotiating for the Fisher mill on Clear Creek. This looks as if it would soon be reopened for business. It has been idle for three years.

The number of miners and good working people daily arriving to take part with those that are here in the work we are doing, should guarantee the speedy opening of every idle mine in the country. Nothing like it has been seen since the palmy days when the daily arrivals were counted by hundreds.

Sugar Loaf Correspondence: Many very promising lodes have been struck in this district, the largest among which are the Townner and Mastodon. These are different locations on the same ledge. It is a very large ledge, cropping out at the discovery some twenty feet in width, and standing up five to ten feet above the surface of the ground. The croppings assay from \$10 to \$25 per ton in silver, with a trace of gold. The discovery shaft is 18 feet deep, and shows about a foot of nearly solid, fine looking ore. None of the lodes have been sufficiently developed to prove their character.

Another letter says: The Hoosier ledge in Gold Hill district crops out 20 to 40 ft. wide, and stands from 5 to 20 ft. above the surface of the ground. The ore from the discovery shaft assays from \$150 to \$1,600 per ton. There are several other large ledges in the vicinity.

Georgetown Miner, May 21st: Messrs. Crow & Clark have a force of about 24 men employed on the Terrible lode, and the road up the mountain leading to the same.

Brown Mountain is alive with prospectors.

We saw a button of silver the other day weighing 5½ ounces, which was taken from 3½ pounds of Munsell ore.

Work is reported as going on briskly at the National Treasury lode in Penn. District.

Same of 28th: The road to the Terrible lode is nearly completed. On the Munsell, a drift is being driven in fine ore 18 feet from the bottom. Most of the Equator ore will be sent east for reduction this season. So with the Terrible. A

new opening into the Griffith will be made soon....The tunnel on the New Boston struck the lode yesterday. The mine will now be timbered up and a drift run across so as to ascertain the width of the crevice. Fisher & Cooper are opening up some property in the vicinity of the Astor lode.... Messrs. Snyder & Peters are engaged in the development of three lodes on Sherman Mountain....Messrs. Chapin & Denison own seven-twelfths of the Winnebago lode. Work on the Herkimer goes on briskly, and the mine looks promising....Work on the Kashmiro will commence soon.... Messrs. Smith & Warren are pegging away at the Comet lode....The White lode is to be worked this season....The Flora McLane lode shows splendid ore....The Ashley Franklin lode has a foot of ore near the surface, which assays 54 ounces silver per ton.

DACOTAH.

Sweetwater Mines, May 23d: The Summit Ditch Co. broke ground yesterday and intend to have the whole work completed in, side of 12 days. The ditch will be $4\frac{1}{2}$ miles long in length and is intended to supply Oregon Gulch with sufficient water for mining purposes.

Some of the richest gold bearing quartz we ever saw was presented us yesterday taken from the Buckeye ledge, California district.

Mr. S. T. Sheppard found a $2\frac{1}{2}$ oz. nugget the other day in Meadow Gulch.

We are pleased to see the energy exhibited by the miners on Rock Creek in opening up their claims. There cannot be a question as to the claims paying well.

Two rich lodes, the rock of which exhibits free gold in abundance, were discovered and located a few days ago by parties who were about to leave for other parts.

Same of May 30th: In the Midas Co's claim, Atlantic ledge, California district, preparations are made for a vigorous prosecution of the work. The claim has been opened at three different points, showing a vein of about four feet. The ore prospects well.

We have visited the Father Price ledge, discovered and located by Jeff. Davis, situated about five miles northeasterly from South Pass City. It contains 2,200 ft., and the rock exhibits free gold in abundance. The ledge on the surface is about four feet, and widening.

On Tuesday we paid a visit to the placer claims in California district; among others we visited were Sheppard & Co's claims in Meadow and Yankee gulches. Although these gentlemen have but very little water, scarcely 15 in. to work with, yet their claims are paying well.

Messrs. Fairfield & Co's power astrata, on Willow Creek, below Hermit, is rapidly drawing to completion.

Owyhee *Avalanche*, June 6th: Sam Fry writes from South Pass City to a friend in town that there is some good quartz in that section of the country, but that those who go to Sweetwater with the expectation of finding good placer diggings are badly deceived.

IDAHO.

Owyhee *Avalanche*, June 6th: At no time during the past year were the mining prospects so encouraging as at present. Not a week passes away that does not bring to light new and rich discoveries, and the mines that have already been opened and are being worked, increase in width and richness the more they are developed. W. F. & Co. sent below on Tuesday morning nearly \$62,000 worth of gold and silver bullion.

The Golden Chariot Co. are now running a new level 100 feet below the tunnel, where the ledge is about three feet wide. It is getting softer and easier to work. The ore is still rich in gold, but as the depth increases, there is a corresponding increase in the proportion of silver. Large quantities of timbers are on the ground. A large space is being graded where the steam hoisting works will be placed.

The Ida Elmore continues as rich as ever, the ore being of about the same character as the Golden Chariot. The mine is being well timbered and the stopes and levels put in good shape.

Way & Vincent have recently struck rich gold and silver-bearing quartz on the second south extension of the Oro Fino, which was located in '63. Last winter, Tom Lawson bonded a portion of the ground to Way & Vincent, for \$5,250. For some time these gentlemen have been diligently prospecting the claim.

Wm. Reynolds has struck what is evidently a rich gold-bearing quartz lode, on the south side of the mountain near the second extension of the Oro Fino.

The Boyd Silver M. Co. has been incorporated to work the "First South Extension" of the Rising Star in Flint District.

The capital stock is \$1,600,000 in 1,600 shares.

Idaho City World, June 6th: A private letter from Lemhi, dated Salmon City, May 15th, says: The camp is paying very well, the generality of the claims yielding from \$20 to \$50 a day to the hand. The Douglass boys on Smith's gulch, had a dividend last week of \$3,000, after paying all expenses of opening their ground this spring. Nappies creek is paying better than ever. Bear Track, and Sierra and Meadow creeks are paying to nearly all an average of about \$40 to the hand a day. A great many bars are actively worked all through the diggings which were last year considered worthless, and they pay from \$12 to \$30 per day. Ben. Heath's flume is in operation, and I would not be surprised if the company cleared \$50,000 this season. Beer's flume to California Bar, started yesterday.

Wages are \$6 and \$7 a day, and men scarce. Provisions are reasonable, water is plenty.

Flint Creek has completely gone in. No ledge there. The mill closed down \$11,000 in debt.

MONTANA.

Helena Post, May 29th: In Jefferson gulch, E. Wall & Co. have been ground sluicing in their claim this spring with good results. On Friday and Saturday last, with two men shoveling in, the clean ups were respectively forty and sixty-three dollars. The hydraulic of Darah, Harris & Co., cleaned up for the last week's run, 39 ozs. of nice gold. On this claim four men were employed during the day time, and three during the night.

Four companies are mining with bed rock flumes in Haine's Gulch, and two more are getting ready. They have about sixty inches of water and are reported as doing well. In Bivins Gulch, there are also several companies at work drawing water for sluicing from Ram's Horn.

Several rich quartz ledges have been struck recently in the vicinity of Emigrant Gulch, and Mr. Cover talks of putting up a mill.

On Ophir Bar, below Blackfoot City, every claim is being worked and from \$11 to \$20 per day to the man is being taken out. A number of claims on Carpenter's Bar are also proving excellent. A 24-oz. nugget has just been taken out there.

We mention it as one of the evidences that Montana is "played out," that the First National Bank on Wednesday, cast gold bars, which weighed 1,682 ozs., of the value of \$31,047 in gold coin, equivalent to \$45,000 in currency.

The Crow Creek mines are yielding from \$8 to \$20 per day to the band. The three ditches cannot begin to supply water to all the diggings. Potter completed his ditch last week. It is about seven miles in length and will carry 1,000 inches of water. Another ditch brings 500 inches of water to the mines, while a third supplies 300 inches. A shaft, 27 feet in depth has been sunk on the Leviathan lead, showing a crevice three feet and six inches in width.

From the *Gazette*: A company is running a bed rock flume in Avalanche Gulch. There is an abundance of water and every indication of good pay.

Virginia item: Mr. Corbett has nearly completed the preliminary survey of the new ditch to be brought into Alder, and reports very favorably upon the chance of success.

NEVADA.

Esmeralda.

Anrora Union, June 6th: Sam Davis, who has just arrived from Silver Peak, informs us that times are very lively there. The track is graded from the wagon road to the mine, a distance of a mile and three-quarters, on which the track is laid half a mile or more.

At Hot Springs, things are moving along lively. The furnaces have been running out considerable bullion lately.

Pine Grove Correspondence: A large additional body of sulphuret ore has been struck in the Wilson mine, and there is enough in sight to run a 40-stamp mill for two years. They have just cleaned up another fifteen or twenty thousand dollars, the result of the last two weeks' run.... Toombs & Abrahams have had bad luck with their new mill, breaking several of the cams, but new machinery has arrived and everything is working smoothly. They have between five and six hundred tons of good ore on the dump....The Pioneer mill is running on ore from the Mountain View. This will probably pay \$20 per ton.... Work has been commenced on the Imperial mine by N. U. Sanders, with an excellent prospect.

Territorial Enterprise, Pine Grove Letter: Hon. W. T. Jones writes me from Ellsworth, Nye County, in relation to a new

discovery in the northeastern corner of Esmeralda County. The district is known as the Mammoth District. "In all my mining experience since '52, I have met with nothing exceeding it in promise of big results. The deposits are principally of gold. I have made several working tests of the ores during the past ten days. My lowest result from ores in which no metal was to be seen, was \$153.60 per ton. My highest, including both gold and silver, was \$3,200 per ton. Several have ranged from the lowest up to \$510 per ton. As yet there have been but four or five ledges located upon. The whole country for several miles around looks promising for more of the same sort. These ores, unlike the general run in this locality, may be successfully worked without reasting. [Our last issue contained a letter from this district.—Eps. Press].... The Midas mine is being opened out for another run....Capt. Blasdel has just informed us that Tom Priace has struck another pay vein in the Mountain View, which has a clay wall and is well defined. He says the vein is about two feet wide, and that the ore will not go less than \$30 per ton. Workmen who have just returned from the Central mine inform me that they have been taking out rock to-day which was really he-spangled all over with gold. It is the richest rock they ever saw.

Reese River.

Silver Bend Reporter, June 6th: Gillett & Clark have sold 300 feet of the Wyoming ledge to the agent of the Silver Mountain Co. The purchasers will immediately commence sinking another shaft 100 feet west of the works of Gillett & Clark. Col. Raymond has already a force of ten men at work, and will erect a mill at Rattlesnake Cañon at once. Messrs. Gillett & Clark have about 125 tons of rich ore ready for milling, and are driving their shaft downward night and day. In Hot Creek Cañon the little 10-stamp mill is undergoing repairs and will soon be in motion—having been leased by Messrs. Robertson & Crowell.

We have received from Mr. McCollum, who is now working the Brown and Del Monte mines in Bunker Hill District, a beautiful specimen of sulphuret ore from the former claim which assays over \$1,200 per ton.

Same of 10th: There are 19 bars of bullion in the Combination Co's vaults, of the value of \$19,000. The supply of salt has interfered with the regular working of the batteries, but it is now coming in and everything goes on as before.

Thirteen assays of ore from the Ophir and other mines in Manhattan District, were recently made at Austin, and the average result was \$430 per ton.

During the month of May the Manhattan mill at Austin, produced 102,657 ounces of bullion, valued at \$103,683.57. This is an extraordinary product for a 20-stamp mill.

Reveille, June 5th: Yesterday afternoon 11,000 ounces of crude bullion were brought from the Newark District into this city. The bullion was produced by the mill of the Centenary Co., and is the yield of eight days' run.

Some 3,000 ounces of crude bullion arrived in the city yesterday afternoon from Rigby's mill in the district of San Antonio.

White Pine Correspondence: The finest body of high grade surface ore ever seen east of the Comstock is now being taken out of the South Eberhardt. Think of a mass of ore 18 to 20 feet wide, which, with only a few pieces of second class rock thrown aside, will easily pay \$1,000 to the ton in the mill! An open cut four to five feet deep is being carried along the ledge, and pieces of horn-silver and stettefeldite, so large that one of them is more than the strongest man can lift, are being dug out from day to day. The Big Smoky Co. had an agent here a few days ago, who was so generous as to offer \$10,000 for this mine, but as the owners had at least \$5,000 worth of ore ready for the mill and \$50,000 worth more in actual sight, they naturally made fun of such an offer. The Keystone ledge, parallel with the Eberhardt, is yielding an equally fine quality of ore, but it is not over a quarter the width of the latter.

We saw this afternoon two small bars of bullion, weighing 1,275 ounces, .970 fine, and valued at \$1,601. They were the product of ore from the Hidden Treasure ledge, White Pine District.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Territorial Enterprise, June 14th: A large pocket or reservoir of water has been tapped by the new shaft of the Sierra Nevada Co. at a depth below the surface of 750 feet. It is believed that the shaft has cut into the east stratum of the Comstock lead. The

water rose very rapidly and finally reached a height of 164 feet in the shaft. It has since been reduced 30 or 40 feet by hoisting and pumping. A new pump is being put in place.

There was a rumor on the streets yesterday afternoon that a big strike had been made in the Imperial mine, in the drift which has been run from the Imperial-Empire shaft at the 900-foot level, but it appears to have been a false alarm. The indications are considered very favorable in the drifts of both mines.

Gold Hill News, June 13th: The Empire drift has penetrated the Comstock ledge to the extent of about thirty feet and is now in very hard, barren white quartz, in which a small streak of good ore is occasionally encountered. The Imperial drift is also in barren quartz.

Trespass, June 13th: In Alpha, the machinery at the shaft has not as yet been placed in running order....In Belcher, the north drift toward the Crown Point line is being continued, with no noticeable improvement....In Crown Point, the south drift, 800-foot level, is in 134 feet, the face exhibiting some porphyry and a large amount of very rich ore. The upper levels of the mine continue to furnish the accustomed stope yield of excellent milling ore, and the assays have increased materially for several weeks past....In Chollar-Potosi, the drift—1,100-foot level—will be commenced as soon as the entire pump column can be placed. The old Blue Wing lode is yielding the principal amount of ore taken out, and for a week or two assays are much higher than usual. About 100 tons of ore are being extracted daily; and speculation as to the lower developments keep the stock well sustained....In Empire

mill, the drift—new shaft—is 38 feet west of second clay, in hard ground, and no ore yet in sight....In Hale & Norcross, at the lowest level the drift, this morning, is reported to be within a supposed distance of 16 feet from the ledge. On the 700-foot level, the drift south from southwest drift has developed a body of ore about six feet wide and assaying \$70. This body of ore is incased in a large vein of quartz, and is distant from the Chollar ground about 150 feet....In Imperial, for three days—being in the vicinity of the ledge, having cut the clay and tapped the vein—progress has been slow, and the force has been engaged in re-timbering, etc. The old shaft is to be also re-timbered and put in good repair....In Kentuck, work on the shaft continues—progress being slow, and the mine is yielding as good ore as usual from the various levels....In Savage, about 250 tons of \$40-ore are being extracted daily; though re-timbering in places will soon reduce that amount. The old stations present but little change. At the 6th station the timbers are all set, and drifting may be commenced at any time....In Sierra Nevada, the shaft at the depth of 214 feet (72½ feet from the surface) penetrated a vein of quartz and clay on the east, and tapped an immense reservoir of water. So great was the flow, that in 17 hours it increased in the shaft 164 feet, with a tank of large capacity hoisting to the first reservoir for the pump to drain. Last evening the water had been reduced 30 feet. In about a week it is expected that both pumps will be let down, the shaft drained, and work will commence on the east ledge, which it is believed has been cut.

During the past week, from the office of Wells, Fargo & Co. in this city, there were dispatched 4,736 pounds of assayed bullion, valued at \$162,623.30; from Gold Hill, 3,396 pounds, valued at \$117,648.53.

The Sapphire mill, in lower Gold Hill, is to be stopped next week for repairs.

UTAH.

Salt Lake Reporter, May 15th: From the information we can gather, there are rich and extensive gold diggings in Bingham Cañon. A miner from there brought in yesterday \$800 in dust, and sold it to Walker Bros. The Cañon is about twenty-five miles west of this city. About 150 men are at work there now.

PHOTOGRAPHING IN COLORS.—It is said that by a process which is still a secret, M. Adolphe Braun, of Dornach (Haut-Rhin), has produced absolute fac-similes of the best drawings by the great masters. These new photographs are superior to all former works of the same kind in excellence of detail and the surface quality. They also reproduce exactly the tint of the original,—neutral, brown, red, or greenish, as the case may be. They are confidently asserted to be absolutely permanent; but this must of course remain to be proved by time.

Mining and Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

G. W. M. SMITH,..... W. B. EWER,..... A. T. DEWEY,
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Mr. A. C. Knox, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office, Jan. 11, 1868.

Mr. C. T. Roney is our duly authorized agent for Sacramento County, Nov. 23, 1867.

Dr. L. G. Yates is our duly authorized traveling agent, July 6, 1867.

Mr. A. B. Butler is a duly authorized traveling agent for this paper, July 15, 1867.

San Francisco:

Saturday Morning, June 20, 1868.

Notices to Correspondents.

PNEUMATIC.—Faraday, as the result of his experiments, found that ammonia and sulphureted hydrogen, when solidified by pressure, each afforded a white translucent mass resembling in appearance crystallized ammonia; euclorine, a yellow explosive gas, which is evolved on gently heating a chlorate with hydrochloric acid, yielded under similar treatment, a transparent orange-colored crystalline solid. The other liquefied gases which were found susceptible of being solidified, furnished colorless transparent crystalline masses, like ice. Oxygen remained gaseous under a pressure of 27 atmospheres, at a temperature of 166° F.; and a pressure of 58.5 atmospheres at a temperature of 140° F., was found equally ineffectual in producing liquefaction. Nitrogen and hinoxide of nitrogen resisted a pressure of 50 atmospheres; with carbonic oxide, a pressure equivalent to 40 do.; coal gas, one of 32 do., and with hydrogen, one of 27 atmospheres was applied without occasioning liquefaction. In all the last described experiments, the temperature was maintained at 166° F. Owing to the great diffusive power of the lighter gases, such as hydrogen, the apparatus began to leak at comparatively low pressures; and thus placed a limit to the amount of pressure that could be employed when experimenting with them.

DEVALION, Sacramento.—The statements made by regular newspaper correspondents when describing or alluding to scientific matters, should always be received *cum grano salis*. Although usually possessed of general intelligence, these gentlemen cannot be expected to be versed in every variety of specialty; it is therefore not at all surprising that a New York correspondent of one of our city dailies has erred, and so misled you into the opinion that an effective but expensive motor has been discovered and exhibited in that city, which from its lightness, was adapted to propel aerial machines. The apparatus chiefly consisted of a galvanic battery of forty cells, so arranged as to develop a mechanical force equal to the one-tenth of a horse, or half of a man's power. Such an apparatus may not appear very heavy, *per se*; but a supply, and that a heavy one, of water and sulphuric acid, will be required to maintain such power,—a weight in fact sufficiently heavy to more than resist the tendency to rise of any machine, though inflated with hydrogen. To infer from such an exhibition as that lately made at the lecture-room of the College of New York, by the mere apparatus seen on its floor, would be about as wise as to calculate the weight of engines, boiler and fuel required to cross the Pacific to Asia, by merely estimating the dead weight of machinery, and one charge of coal only after the steam has been raised.

B. C. B., Duncan's Mill, Sonoma County. The "gritty substance" which you send appears to be a disintegrated talcose rock, with fine granular quartz. It might possibly be made useful as a polishing powder, for some purposes; but is not as good as the silicious material sold in this city under the misnomer of "silicon;" which latter substance can be had in unlimited quantity. The substance which you send has no affinity with emery.

CONTINENTAL Life Insurance Company,
302 Montgomery street, corner of Pine.

New Tendencies of Manufacturing Enterprise.

A lively interest is beginning to be manifested by capitalists in the Northern and Middle Mississippi Valley States, with regard to the introduction there of manufacturing operations. The fact is becoming apparent that the great cost of transportation to and from the waterfalls of the interior of New England, where the manufacturing of the country is now chiefly carried on, more than counterbalances the cheap fuel and low cost of living and labor near the great commercial and consuming centers of the West. Western men assert that they can even now manufacture at least sufficient for their own supply, and in many things successfully compete with Eastern manufacturers.

A late report of the Secretary of the Interior develops most unmistakably the tendency of our manufacturing industry. It is there shown, by carefully compiled statistics, that the amount of earnings averaged by operatives is less, at points near waterfalls, than at other points where steam is supplied by cheap fuel. It is even shown that the average earnings of the operatives of Lowell, Lawrence and Manchester, (the most favorable localities for water-power manufacture in the country) are considerably less than the earnings in those places where steam power alone is employed, with easy access to coal.

It is further shown that industry is more productive in money value at the West than at the East; and the prediction is ventured that the completion of the Pacific Railroad will so much improve facilities as to make the West, at an early day, the great seat of manufacturing industry, as well as the center of civilization.

As an exemplification of the westward tendency of manufacturing industry, even in its most delicate and complicated branches, we may instance the recent establishment at Elgin, Ill., of a large watch manufactory. Yankee clocks are celebrated the world over; but it was not believed until quite recently, that American ingenuity could produce so delicate an article as a watch in competition with the old establishments of Europe, where this business had its birth. The American Watch Company of Waltham, Mass., has effectually dispelled this delusion, and proven to the world that machinery can be made so accurate as to far excel in perfection the most delicate labor of the fingers; while the great economy in machine over hand labor is patent to all.

Europeans have never yet succeeded in largely utilizing delicate machinery. They utterly fail when they attempt the manufacture by machinery of a sewing machine, a Colt's or any similar firearm, a watch or a clock. The United States, for long years at least, will monopolize these branches of manufacture, and be the chief suppliers for the world; and in the future, with this as with many other branches of industry, the great and growing West will be sure to have its share.

The Mississippi Valley is the great granary of the North American Continent. With its cheap coal, cheap living, cheap labor and cheap transportation, it must be apparent that, with a proper direction of its fast accumulating capital, it must ultimately become the center of manufacturing enterprise. Food productions are necessarily bulky, and should be consumed, as near as may be, to the locality where they are produced; manufactures are generally less bulky, and more easy of transportation. Hence policy would seem to indicate that the manufacturer should ply his avocation in the vicinity of the producer; as by that arrangement the manufactured articles alone would go abroad to seek a market, while by the other, both must be moved at great cost of time and labor.

The industry of a nation should be as

carefully arranged and economized as is the business of a well ordered manufacturing establishment. The manufacturer, in arranging his works, always has an eye to the handling and conveying from point to point of everything which passes through the hands of his employes. He has everything so arranged, if possible, that the raw material goes in at one door or end of his works, and moves along gradually—the different materials all coming together just when and where they are wanted, until they finally go out at the opposite door or end, finished and ready for market. There is no passing back and forth; no unnecessary handling is allowed.

So it should be with the complicated industries of a nation. It is folly to transmit raw materials to an unproductive section of the country to be manufactured, where the food and supplies for the workmen must also be brought from a distance. Double the transportation is required that would be needed if the raw material (which must be moved) was taken direct to a food-producing region to be worked up. Time was when it was necessary to thus seek for water-power at almost any cost. Late improvements in steam machinery, and the attainment of cheap coals has changed the necessity for this, and a new policy must now be inaugurated. Capitalists are beginning to realize these facts, and act upon this changed condition of things. This matter is one of very simple practical economy, but one of great importance to California. The nature of its bearing on this State, we will endeavor to give next week.

DEDICATION OF THE MERCANTILE LIBRARY BUILDING.—The doors of the new Mercantile Library were thrown open at an early hour on Thursday evening, and crowds of people flocked in and dispersed themselves over the building, in admiring wonder at the beauty, elegance and taste displayed in the arrangement and adornment of the edifice. The library and the ladies' apartments were especially decorated for the occasion by splendid hoquets of fragrant flowers. The rooms were all brilliantly illuminated, and elicited from all sides exclamations of wonder and surprise at the unexpectedly superior manner in which the work of construction, furnishing and adornment had been completed. Long before the hour for the commencement of the exercises had arrived, the lecture room was densely crowded with an audience, a large portion of whom were ladies. The platform was occupied with the officers of the Association and several invited guests. After music from the band, R. B. Swain, Esq., the President, called the meeting to order, when prayer was offered by Dr. Stebbins, after which the dedicatory oration was pronounced by Hon. John B. Felton, which was followed by an address from the President. The dedicatory services were concluded by a benediction by Rev. H. Bush.

BROAD OR NARROW.—It is now pretty conclusively established that, for railroads, the broad gauge is the broad road to destruction. The cost of keeping in repair the six-foot gauge, owing to the great weight of the rolling stock, and the increased cost of that stock, as compared with the same items upon a road built with a gauge of four feet eight and a half inches, have been the cause of failure in several instances. The Superintendent of the Erie Railroad recently asked of the directors twenty-five thousand tons of new rails. This Erie road is one of the three only railroads now remaining in the United States which were built upon the broad-gauge plan. Another of the three, the Ohio and Mississippi, has repented and resolved to adopt the strait gauge and the narrow way which will insure its financial salvation. One rail is to be taken up and moved inward, the cars altered to conform thereto, and new engines probably procured. The last of the three roads, the Atlantic and Great Western, is in the hands of a receiver.

California Academy of Sciences.

REGULAR MEETING.

MONDAY EVENING, June 15, 1868.

President Dr. James Blake in the Chair. Dr. Stout presented, in behalf of I. W. Raymond, of the N. A. S. S. Company, a very fine specimen of the nest of the oriole, from South America. The same gentleman also presented, in behalf of Dr. I. Rowell, a curious Japanese zoöphyte, which was referred to Dr. Ayers for examination and report.

Before proceeding to further regular business, the President stated that, in consequence of the time likely to be occupied by the lecture of Mr. Louis Falkenau, the Council had thought it best to postpone the regular business. He believed that a meeting would be held next Monday, at which reports might be submitted, and other business transacted.

Mr. Falkenau then proceeded to deliver a very interesting address, which we regret we are not able to give in our present issue. The subject was the mining interests of the Pacific Coast, in the discussion of which he pointed out how the Academy of Science might aid in the development of the same by the general diffusion of knowledge,—a matter which came directly within the scope of their duty. We shall either give the lecture entire or copious extracts therefrom next week.

Several members endorsed the views of the lecturer.

Dr. Stout presented the report of the Building Committee. The Paul Tract Homestead Association had agreed to grant the Academy a block of land in South San Francisco, on condition that they erected a building, to cost not less than \$10,000, within the term of two years.

Dr. Stout observed, that within this time the Academy would probably consist of from 200 to 300 members, and if they could not raise from \$12,000 to \$15,000, the Academy ought to humble its head. All might not be able to do much, or all alike, but each could do something. For himself, he promised to give, within the two years, \$1,000, and if others would do the same, the first obligation of the contract could be immediately fulfilled. Other institutions in this city had received thousands upon thousands of dollars, almost without an effort, and surely this Academy, which avowedly stood at the head of science on this coast, should experience no difficulty in finding the funds for this purpose.

The matter was discussed at great length, but no conclusion was arrived at. The Academy adjourned until next Monday.

THE SIMPSON RUBBER PATENT.—An injunction was recently applied for by the administrator of Nelson Goodyear, to prevent infringement of patent by the use of india rubber for dental purposes under the patent of Edwin L. Simpson. The latter patentee describes his mode of preparing the article, in order to produce a vulcanite free from the odor and taste of sulphur; which, he says, occasions the principal objection to the use of rubber for dental purposes. Briefly stated, it consists in combining benzoin gum and linseed oil with the sulphur. He claims that the benzoin renders the compound nearly if not perfectly odorless.

It was held by the court, that the "specification of the Simpson patent does not pretend that the compound differs from the product formed according to the Nelson Goodyear patents in any of its qualities or properties, or capacities, except in being odorless and tasteless; and that although it might be an improvement and patentable, it does not follow that it can be made or used without the permission of the owners of the Goodyear patents." The injunction was therefore issued as prayed for.

EARTH CIRCUIT IN TELEGRAPHING.—The *Mechanics' Magazine*, speaking of the recent failure to transmit a current through a wire in one of the Lake Superior copper mines, says: In this case, an attempt was made to form an earth circuit in non-conducting material. The end of the wire in the mine was tamped into the solid rock, probably quartz, which would be about the same as tamping it into a glass bottle, filled with earth or water. The chances of electric communication would be still less, if the wire was not perfectly insulated in its whole length. The remedy would be to make a return circuit of insulated wire.

(Continued from Page 399.)

In this room are arranged all the books of reference, bound newspapers, periodicals, etc. Among the rare works found in this collection, is a most valuable compilation of California newspapers, from 1846 to 1856, made by A. S. Taylor, and the only one extant. Beyond this is the

LADIES' PARLOR AND READING-ROOM,

which is, as it should be, the most beautifully furnished apartment in the building. The entrance to this room is shaded by elegant curtains of lace; the floor is carpeted with the softest and most delicate pile, and the walls hung with medallion portraits of notable personages. The exquisite taste shown in the selection of furniture, mirrors, upholstery, etc., for this room, reflects the highest credit upon both the managers of the association, who directed, and upon Messrs. Plinn & Co. and Mr. Edwards, who were consulted in the matter, and who supplied the adornments. We may here add that the carpeting for the building, throughout, was furnished by Messrs. P. F. Loughran & Co., and the furniture by Goodwin & Co. The elegant mirror, which so truthfully reflects, from head to foot, the human form divine, was presented to the association by Messrs. Whittier & Fuller. The ladies will ever thank them for this elegant donation.

The ventilation of the Library Room, and indeed all the principal rooms throughout the building, is excellent. The shelving, cases and desks of the Library are of black walnut, finished with the highest degree of beauty consistent with usefulness and good taste. They were made by J. & J. Easton, of Market street. The lettering over each department into which the books are divided, is gilt upon green ground, harmonizing well with the somber hue of the dark-colored casings and cornices. A large terrestrial and a celestial globe, of mammoth and uniform size, form conspicuous and appropriate features in the Library. The three elegant Etruscan vases of porcelain, in the ladies' parlor, were presented by Haynes & Lawton. The gas fixtures throughout the edifice are elegantly and appropriately designed and arranged. They were furnished by Prior.

On the same floor, but in the rear portion of the building, are the chess and smoking rooms, and the rooms of the Trustees, Librarian and Janitor. The rooms are all warmed by a mammoth furnace imported especially from Boston, by Locke & Montague. It is one of the largest sizes made, and is placed beneath the grand staircase, in the entrance. Open grates are also provided in most of the rooms, to be used when thought advisable. The stairs, which constitute one of the principal and most important features of the edifice, were planned and constructed by Mr. N. P. Langland.

THE THIRD FLOOR.

Directly over the Library, of the same dimensions and on the third floor, is the Reading Room, which is furnished with commodious stands for newspapers, which are displayed and neatly secured to the stands by an ingeniously devised newspaper file invented by Mr. John A. Haugh, the Janitor. For the convenience of finding the different papers, they are geographically arranged, by states, counties, etc. The desks are also lettered and the papers on each numbered, and a register posted convenient to the entrance to further facilitate visitors in finding any particular ones which they may desire to consult. There are over 200 papers on file—some 20 of which are foreign. There are 61 magazines and 13 illustrated papers. Opening out of the main Reading Room, is another smaller one devoted to quarterly and monthly magazines, illustrated papers, etc.

THE MUSEUM AND ART GALLERY.

Quite a novel feature in this temple of literature and art, is a Museum of Minerals

and rare Curiosities, and an Art Gallery. The room devoted to this purpose is a large, handsome and well-lighted apartment, richly carpeted, one side of which has been furnished with a suit of most elegant cabinets, with plate-glass fronts, and within which are most tastefully displayed upon velvet ground-work a large collection of minerals, all most choice in character, and many of which are very valuable. The collection of spars, stalactites, stalagmites, and lead and copper ores are very superior—not equaled in the country. It recently arrived from the East and is now for the first time exhibited in this city. Large additions will soon be made from collections now on their way hither. It will no doubt be the nucleus for the ultimate collection of the most elegant and unique cabinet on the Pacific Coast. This rare and splendid collection of minerals is the private property of Mr. Alfred Stebbins, the gentlemanly Librarian, who has kindly placed it where the members of the association can have the fullest benefit derivable from its exhibition. The cabinets have been procured at a cost of about \$2,500, and are of most beautiful design and workmanship. They were made by Messrs. Miller & Haley, of the Empiro Steam Mills, Fremont street. Quite a number of beautiful paintings have already been placed upon the walls of this room, kindly furnished by artists for decoration and exhibition. It is proposed to make this a Gallery of Art, where California artists may exhibit their paintings from time to time, as they may desire. Paintings from Wandesforde, Wall, Burgess, Jewett, Arriola and others, already adorn its walls. This room will eventually become one of the features of the building, if not of the city.

THE FOURTH FLOOR,

which is inclosed by the walls of the Mansard roof, is divided into 24 rooms, in suits and single, suitable for artists' studios, offices, dormitories, etc. Quite a number of these rooms have already been taken.

This building, from basement to roof, reflects the highest credit upon its designers, its constructors, and all who have been in any way engaged in its erection or adornment. Those who ought to know, have freely asserted that no other Mercantile Library Association in the Union has such an elegant and well-appointed library building. The whole enterprise, from its first inception to its final inauguration, has been marvelously well done. We would here remark that the Association and the public are indebted, for more than they are probably aware of, to the individual exertions of R. B. Swain, the present, and W. H. L. Barnes, the late President of that body, for the successful issue which has been accomplished. Both these gentlemen have labored diligently and earnestly in behalf of the enterprise, in financial negotiations, and in otherwise encouraging and helping along the good work.

THROUGH TO RENO.—At 8.20 P. M. on Wednesday the last rail waiting to complete the connection of California with Nevada was laid. The cars now run to Reno, 154 miles from Sacramento. It is expected that in two weeks more they will run to the Big Bend of the Truckee, 33 miles farther. What would the men who were climbing and toiling over the Sierra nineteen years ago to-day, have thought of the lunatic who should predict that within that time the journey to Sacramento, the still far-off haven of their hopes, would be regularly made in twelve hours, and in a comfortably cushioned car? Less time than in some cases it took them to engineer an ox-cart a single mile! But nothing is very astonishing now-a-days; at least to an American. A year and a week from this time, the two oceans will probably be connected by continuous steam travel; and this chief wonder of a generation of wonders be completed, in one-third less time than even the most sanguine of its projectors dared to hope.

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POWDER CO.**FREEMAN, SMITH & CO.,****Agents for the Company,**
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19v16-3m**Heavy Iron-Work.****A writer in the Scotsman gives a descrip-**
tion of the iron-works of Messrs. Colville
& Gray at Coatbridge, a portion of which
we quote:**"The fittings of the forge are of the**
most gigantic character. There are two
steam-crane, capable of lifting fifty tons
each; four, forty tons each; and four, twelve
tons each; and these are so arranged that a
shaft or other piece of work may be passed
from one to the other all over the shop.
There are fifteen steam-hammers, varying
in weight from seven tons to two. Finished
shafts—that is, finished so far as the ham-
mering is concerned—were lying about in
all directions, and so delicately had these
been operated upon by the hammers that
the surfaces were so smooth that turning
would seem to be almost superfluous. Yet
they were destined, before leaving the place,
to be fitted into a lathe and turned with the
greatest exactness. In the heating furna-
ces and under the hammers were a dozen
more heavy jobs in the shape of crank-
shafts, rudder frames, and such like; and
as these were in all stages of progress, a
glance at them made plain the whole process
of forging. In making a crank-shaft, for
instance, a piece of iron eight or ten feet
long, and of suitable diameter, is used as a
"haft" or handle. At one extremity it
is fitted with cross-hars or levers, by which
it may be turned on its axis; and the other
end is shaped conveniently for having
smaller pieces of iron welded to it. The
welding end is placed in a furnace, and in
about an hour and a half is raised to a weld-
ing heat. The crane by which the iron is
moved about is fitted with a chain collar or
sling, in the loop of which the iron rests.
The collar works in a pulley attached to the
chain of the crane, and moves easily; so
that the shaft may be readily turned on the
anvil. When the proper degree of heat is
attained, the stopping of the furnace is re-
moved, the steam crane put in motion, and
the gigantic bolt is swung on to the anvil
of the steam-hammer. Several large slabs
of iron, similarly heated in another fur-
nace, are then brought out and laid on the
"face" of the "haft." A signal from the
headforgan, and the hammer drops upon
the glowing mass, and a dazzling shower of
sparks fly off in all directions. Again and
again the hammer descends, the iron mean-
time being carefully moved about, so as to
have the whole wrought into a homogene-
ous mass. Gradually the iron assumes a
dull color, but not before the desired end is
obtained. It then goes back to the furnace,
comes forth glowing, has another addition
made to its hulk, and so on. The most dif-
ficult part of the work is the formation of
the crank piece, which is forged solid, and
forms a huge square projection on one side
of the shaft. When the shaft has acquired
the proper dimensions, it is allowed to
cool, and the haft piece is cut off to be used
again. As the shafts are turned down until
a good surface is obtained, an extra inch or
so is allowed in the forging. The heaviest
work on hand at the time of our visit were
the shafts for two iron-clad rams, which are
being built by Messrs. Napier & Sons for
the British Government. These shafts were
upwards of fourteen inches in diameter.
All shafts are made in lengths of about
twenty feet, and these are made with flanged
ends, so that they may be firmly united.**For dressing and finishing such huge**
pieces of iron as we have described, special
and costly appliances are necessary. These
are located in the machine shop, an apart-
ment 150 feet in length and 50 feet in
breadth, both sides of which are lined with
turning-lathes, slotting and boring ma-
chines, and such like, of extraordinary size.
One of the turning-lathes is said to be the
largest in the world; and some idea of its
dimensions and form may be obtained from
the fact that the crank-shaft of the Monarch,
though weighing thirty-two tons, was
turned in it without taxing its capabilities
to the utmost. Some of the iron shavings
lying about the vast machine were fully
one inch broad and one-eighth of an inch
thick; yet these were turned off with appa-
rently as little effort as if the material had
been wood instead of iron. One of the
horing machines is sufficiently powerful to
drill a hole ten inches in diameter through
a solid hlock of iron, and the largest slot-
ting machine can send off chips a pound or
two in weight. When the work leaves this
department, it is generally quite ready for
being fitted into its place."**HEATED GUNPOWDER.—When gunpowder**
is heated up to the point of decomposition
previons to ignition, the force of its explo-
sion is greatly increased. It is stated that
a temperature of 160° Fah., increases the
force of the explosion one-fifth, while a tem-
perature of 400° nearly doubles it.

THE RICH COUNTRY OF THE APACHES.—Mr. Keller sends a communication to the Los Angeles Star of May 16th, from which we extract the following:

"The Southern Pacific Railroad will give us the Plancha de Plata country, lying between Arizona and the State of Sonora, now occupied by the cruel Apaches, which will be found richer in the precious metals, quartz and placers, than any known mining region in the world, with its mild climate, as rich and fertile soil as any in America, immense forests of oak, cedar, pine, ash, etc., and intersected everywhere with living streams that teem with fish as the forests abound with the wild turkey, and the deer and the elk and all kinds of game. The old Spaniards worked these mines upon a large scale previous to their expulsion in 1822 by the Mexicans. They maintained a cordon of military posts all along the line which now nearly divides Arizona from the State of Sonora; they reduced the Apaches to work their mines and to pray to the Virgin, each 500 Apaches being allowed a priest. The Apaches were Christianized to a certain extent and spoke the Spanish language forty years ago; they rose against the Mexicans in 1825, who neglected to maintain posts to keep them in proper subordination as the old Spaniards did. The Apaches now inhabit the finest lands in the world, are a settled people, that do as good agriculture as the Mexicans, keep immense herds of horses, mules, cattle, sheep and goats; they send out continually marauders to murder and bring home booty. Our soldiers in Arizona have not yet penetrated into the Apache nation, nor have they disturbed the granary from which they draw their supplies. A continental railroad, the miner, and the farmer will subdue and civilize the Apache, which our army can never effect."

DIFFERENCE BETWEEN NITRO-GLYCERINE AND GUNPOWDER.—A writer in the London Mining Journal for May 9th, thus closes his article: The difference between nitro-glycerine and blasting-powder for mining purposes is much the same as between detonating powders and gunpowder in guns. It is found in the latter case that when the powder evolves its gases too rapidly, its force is exerted against the side of the gun, or, in other words, all in one spot, instead of being so distributed as to produce the maximum effect in propelling the ball. It is the same with nitro-glycerine—it exerts great force, but, as the force is not distributed, the effect produced is very small. The only kind of ground in which nitro-glycerine is useful is where there is a good cleavage, as in slate quarries, the reason being obvious; if the bole be put in judiciously, the nitro-glycerine will shift as much as the toughness of the rock will hold together, and as the force is all expended on one spot, the slate will not be injured to the same extent as it would be were there no cleavage; but even in slate quarries the relative value of the two blasting agents will depend upon the nature of the rock, because, if the slate be at all inclined to be tender, the quantity thrown down by the nitro-glycerine will be no greater than with powder, whilst its shattered condition will be such as to render it almost worthless. But in all cases powder is to be preferred, because, as its gases are much less rapidly evolved, they have time to follow the cleavage as the rock opens, and thus produce the largest quantity of useful work with the smallest possible force.

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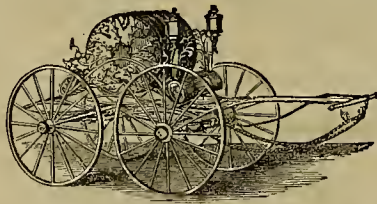
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ESTABLISHED (MAY, 1860.)

VOLUME SIXTEEN

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COMMENCING JANUARY, 1868.

DEWEY & CO., Publishers.

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ESTABLISHED.....MAY, 1860

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THE BOARD OF DIRECTORS OF THE MECHANICS' INSTITUTE hereby give notice that the Sixth Industrial Exhibition of that Association will be held some time in August next, in a building to be erected for the purpose, in Union Square, in this city. Every preparation will be made to accommodate the exhibitors, with a view to make the Exhibition profitable, instructive and pleasant to all parties.

During the three years which have intervened since the holding of the last Exhibition in this city, the manufacturing, mechanical, scientific and useful, and ornamental arts have made unprecedented progress on this coast, and it is believed that the proposed Exhibition will exceed any other in value that has ever been held on the shores of the Pacific.

The plan of building to be erected, which has been adopted by the Board of Directors, it is believed will prove to be the best adapted both for display and convenience of the public, of any building ever erected in the State. The building will be perfectly water-tight, being covered with a single roof, so that no damage from the elements can be anticipated.

All parties who are interested in any of the branches of Manufactures, Mechanics, or the Arts and Sciences, are invited to exhibit in the proposed Exhibition, and to share in the publicity and consequent profit which always attend such enterprises. Suitable premiums will be offered, and the specific date of opening the Exhibition will be published at some future time.

By order of the Board of Directors,
1916-61 HORACE D. DUNN, Cor. Sec'y.

New Mining Advertisements.

Apollo Gold and Silver Mining Company, Lander County, Nevada.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, 225 Clay Street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third day of August, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees,
D. H. CROWE, Secretary.
Office, No. 225 Clay Street San Francisco. j20

Adella Gold Mining Company, Rock Creek, Sierra County, California.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the thirteenth day of May, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Adella Baldwin.....	bal 5	735	\$735 00
D O Stevens.....	24	12	12 00
G O Stevens.....	25	408	408 00
G W Walker.....	53	275	275 00
J H Reiners.....	bal 26	75	75 00

And in accordance with law, and an order of the Board of Trustees, made on the thirteenth day of May, 1868, so many shares of each parcel of said stock as may be necessary will be sold at public auction, at the salesrooms of Messrs. Olney & Co., 425 Montgomery Street, San Francisco, on the sixth day of July, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California Street, San Francisco. j20

Chiloneau Mining Company—District of Ores, Sonora, Mexico.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the eleventh (11th) day of May, 1868, the several amounts set opposite the names of the respective shareholders as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Buzzolini, D.....	11	30	\$120 00
Buzzolini, D.....	74	4	24 00
Clivesch, E.....	22	1	4 00
Fogel, E.....	10	10	60 00
Ghirardelli, D.....	23	29	145 00
Ghirardelli, D.....	72	90	450 00
Ghirardelli, D.....	100	24	120 00
Modellmer, Jos.....	56	25	125 00
Modellmer, Jos.....	57	26	130 00
Sini, R.....	86	5	25 00
Quinn, Thos.....	59	6	25 00
Vincent, J.....	60	9	45 00
Vincent, J.....	60	10	50 00

And in accordance with law, and an order of the Board of Trustees, made on the eleventh (11th) day of May, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by John Middleton & Son, at their salesrooms, No. 310 Montgomery Street, San Francisco, Cal., on Monday, the sixth day of July, 1868, at the hour of 12 o'clock M., of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

JOHN F. LOHSE, Secretary.
Office, 313 California Street, up stairs, San Francisco. j20

Eclipse Gold and Silver Mining Company, Lander County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth (15th) day of June, 1868, an assessment of ten dollars per share was levied upon the capital stock of said Company, payable immediately, in United States Currency, to the Secretary, 225 Clay Street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the seventh day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third day of August, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. A. DRINKHOUSE, Secretary.
Office, 225 Clay Street. j20

Golden Rule Mining Company, Truolmace County, California.—Regular Dividend No. 14 of the Golden Rule Mining Company, was this day declared, of fifty cents per share, equaling 2½ cent. per month for the past two months, on the paid in capital, and is now due and payable under date of June 26th, 1868.

WM. BOSWORTH, President.
A. S. PHIFER, Supt.
J. B. RUSSELL, Secretary.
San Francisco, June 20, 1868. j20

Great Central Mining Company.—Location of Works: Yuma County, Arizona Territory.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the fourteenth day of May, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Burke, M J.....	70	30	\$30 00
Brokaw, Jas.....	69	20	20 00
Brokaw, Jas.....	183	75	75 00
Clark, H C.....	118	50	50 00
Clark, H C.....	119	50	50 00
Clark, Mrs Sarah.....	13	100	100 00
Clark, Mrs Sarah.....	14	50	50 00
Clark, Mrs Sarah.....	15	20	20 00
Cleveland, Wm F.....	313	25	25 00
Cummings, Mrs Ana O.....	256	10	10 00
Jordan, A H.....	272	17	17 00
Johnson, Eben.....	139	50	50 00
Johnson, Eben.....	287	50	50 00
Melone, Geo W.....	5, 7, 5-a	20	10 10
Melone, Geo W.....	20	10	10 10
Powers, Catherine.....	121	5	5 00
Synnot, John.....	274	40	40 00
Washburn, E H.....	326	150	150 00
Washburn, E H.....	273	8	8 00
Wheaton, Wm R.....	229	20	20 00
Wheaton, Wm R.....	283	20	20 00
Wheaton, Geo H.....	250	50	50 00
Thompson, Wm.....	116	10	10 00

And in accordance with law, and an order of the Board of Trustees, made on the fourteenth day of May, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Messrs. Olney & Co., at their salesrooms, No. 425 Montgomery Street, San Francisco, on Tuesday, the seventh day of July, 1868, at the hour of 3½ o'clock P. M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

O. D. SQUIRE, Secretary.
Office, No. 302 Montgomery Street, San Francisco. j20

Hope Gravel Mining Company. Location of Works and Property: Orass Valley, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the fifteenth day of June, 1868, an assessment (No. 24) of one dollar (\$1) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 43 Kearny Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the seventh day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twelfth day of August, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

DAVID WILDER, Secretary.
Office, No. 533 Kearny Street, corner of Sacramento, San Francisco, California. Office hours from 12 to 2 P. M. j20

Seasonings who do not receive the Mining and Scientific Press in due time, are requested to inform the publishers.

I. X. L. Gold and Silver Mining Company.—Location of Mine: Silver Mountain District, Alpine County, Cal.

Notice.—There are delinquent, upon the following described stock, on account of assessment levied on the fourth day of May, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
John A Johnson.....	283	1	\$1 50
Mary C Bridges.....	360	12½	18 75
Wm Davidson.....	340	5	7 50
Win Davidson.....	74	2½	3 75
Joseph Warner.....	101	6	7 50
A B Sablin.....	149	5	7 50
A Wagner.....	207	5	7 50
P A Ringford.....	311	5	7 50
Caroline A Nelson.....	293	2	3 00
D K Swini.....	257	2	3 00
P B Curtis.....	265	5	7 50
L Winchehausen.....	281	4	6 00
Wm West.....	332	5	7 50

And in accordance with law, and an order of the Board of Trustees, made on the fourth day of May, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, by Olney & Co., auctioneers, No. 425 Montgomery Street, San Francisco, Cal., on Wednesday, the first day of July, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

J. CROWNSHIELD, Secretary.
Office, Pioneer Hall, Montgomery Street, up stairs, San Francisco. (c2)

Old Colony Silver Mining Company.—Location of Works: Austin, Lander County, Nevada.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twelfth day of May, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
P F Catter.....	39	25	\$125 00
C Schenck.....	46	50	250 00
R J Van Dewaler.....	28	75	375 00
R J Van Dewaler.....	47	25	125 00

And in accordance with law, and an order of the Board of Trustees, made on the twelfth day of May, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 623 Montgomery Street, San Francisco, on the sixth day of July, 1868, at the hour of 12 o'clock M. of said day, to pay said delinquent assessment thereon, together with costs of advertising and expenses of sale.

HENRY O. HOWARD, Secretary.
Office, 523 Montgomery Street, San Francisco. j20

Mining Notices—Continued.

Adriatic Gold and Silver Mining Company, Florsy District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twelfth day of May, 1868, an assessment of one dollar (\$1) per share was levied upon each and every share of the capital stock of said Company, payable immediately in United States gold and silver coin, to the Secretary, at his office, No. 411 California Street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twelfth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

PAUL NEUMANN, Secretary.
Office, No. 411 California Street. ny23

Bear River Mining Company, Nevada County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the tenth day of June, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Monday, the third day of August, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. M. BUFFINGTON, Secretary.
Office, Room 37 New Merchants' Exchange, California Street, San Francisco. j20

Fogus Mill and Mining Company.—Location of Works: Amador County, Cal.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the third day of June, 1868, an assessment of five dollars (\$5) per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, No. 313 Front Street, San Francisco.

Any stock upon which said assessment shall remain unpaid on the eleventh day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Tuesday, the twelfth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

JOHN J. SCOTCHILLER, Secretary.
Office, No. 313 Front Street, San Francisco, Cal. j20

The Flora Glazier Quartz Mining Company.

Location of Works: Plumas County, California.
Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the eighth day of May, 1868, an assessment of fifty (50) cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Wednesday, the twelfth day of August, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

I. N. THURNE, Sec'y.
Office, No. 17 Montgomery Street, San Francisco, California. ny23

Globe Gold and Silver Mining Company.—Location of Works: Monitor District, Alpine County, California.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the twenty-fifth day of May, 1868, an assessment of two dollars per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at his office, No. 53 Kearny Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the thirtieth (30th) day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Saturday, the eighth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

V. B. POST, Secretary.
Office, Union Street, south side, one door east of Montgomery Street. ny30

Gold Hill Tunneling Gold and Silver Mining Company.—Location: Gold Hill Mining District, County of Storey, State of Nevada.

Notice.—The Fifth Annual Meeting of the stockholders of the above named Company, will be held at their office, 414 California Street, San Francisco, Cal., on SATURDAY, the eighteenth day of July, 1868, at 10 o'clock A. M., for the purpose of electing Trustees to serve for the ensuing year, and such other business as may properly come before it.

R. WEOENER, Secretary.
San Francisco, June 13, 1868. j213

Green Gold and Silver Mining Company.—Location of Works: Gold Hill District, Storey County, Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the nineteenth day of May, 1868, an assessment of one dollar per share was levied upon the capital stock of said Company, payable immediately, in United States gold coin, to the Secretary, at the office of the Company, No. 426 Battery Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the twenty-fourth day of June, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Thursday, the ninth day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

J. W. JOHNSON, Secretary.
Office, No. 606 Battery Street, San Francisco. ny23

Office Providence Gold and Silver Mining Company.—The Annual Meeting of the stockholders of the above named Company, for the purpose of electing Trustees and transacting other necessary business, will be held at the office of the Company, No. 37 New Merchants' Exchange, California Street, San Francisco, on the TWENTIETH day of June, 1868, at 5 o'clock P. M., of that day.

F. P. FOLSOM, President.
J. M. BUFFINGTON, Secretary.
San Francisco, May 28, 1868. ny30

POSTPONEMENT.—The above meeting is postponed to TUESDAY, JUNE THIRTIETH, at 5 o'clock P. M. of that day.

F. F. FOLSOM, President.
J. M. BUFFINGTON, Secretary.
San Francisco, June 20, 1868. j20

Senator Silver Mining Company.—Location of Mine: Storey County, State of Nevada.

Notice is hereby given, that at a meeting of the Board of Trustees of said Company, held on the ninth day of June, 1868, an assessment of ten cents per share was levied upon the capital stock of said Company, payable immediately, in United States gold and silver coin, to the Secretary, at the office of the Company, 408 California Street, San Francisco, Cal.

Any stock upon which said assessment shall remain unpaid on the fifteenth day of July, 1868, shall be deemed delinquent, and will be duly advertised for sale at public auction, and unless payment shall be made before, will be sold on Friday, the thirty-first day of July, 1868, to pay the delinquent assessment, together with costs of advertising and expenses of sale. By order of the Board of Trustees.

T. B. WINOARD, Secretary.
Office, 408 California Street, San Francisco. j213

Silver Sprout Mining Company.—Location of Works and Mines: Kearsarge District, Inyo County, Cal.

Notice.—The Annual Meeting of Stockholders of the Silver Sprout Mining Company, for the purpose of electing Trustees to serve for the ensuing year, will be held at the office of the Company, No. 408 California Street, on TUESDAY, JUNE THIRTIETH, 1868, at 3½ o'clock P. M.

T. B. WINOARD, Secretary.
San Francisco, June 5, 1868. j24w

Office Serton Mining Company.—Location of Works: Drytown Mining District, Amador County, California.

Notice.—There are delinquent upon the following described stock, on account of assessment levied on the twenty-seventh day of April, 1868, the several amounts set opposite the names of the respective shareholders, as follows:

Names.	No. Certificate.	No. Shares.	Amount.
Wm Ashburner.....	51	1	\$100 00
J W Gashwiler.....	51	1	100 00
B Crocker.....	33	10	100 00
Howard Havens, Trustee.....	49	5	50 00
B F Hastings.....	57	10	100 00
Thos A. Hastings.....	34	10	100 00
M S Latham.....	60	5	50 00
M S Latham.....	61	5	50 00
M S Latham.....	62	5	50 00
M S Latham.....	63	5	50 00
M S Latham.....	64	5	50 00
A B McCreery.....	50	4	40 00
Geo C Fringle.....	70	5	50 00
Ed Scott, Trustee.....	68	10	100 00
Ed Scott, Trustee.....	69	5	50 00
Ed W Smith, Acting Cashier.....	35	5	50 00
Lloyd Teyss.....	48	5	50 00

And in accordance with law, and an order of the Board of Trustees, made on the twenty-seventh day of April, 1868, so many shares of each parcel of said stock as may be necessary, will be sold at public auction, at the office of the Company, No. 4 Hayward's Building, California Street, San Francisco, on the thirtieth day of June, 1868, at the hour of 1 o

Machinery.

VARNEY'S
PATENT AMALGAMATOR

These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the muller forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Setters made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

All men are invited to examine these pans and settlers for themselves, at the

PACIFIC FOUNDRY,

San Francisco.

BLAKE'S QUARTZ BREAKER!

PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

BY—

WM. P. BLAKE,

Corner First and Mission streets, or Box 2,077
3V13F SAN FRANCISCO.

Notice to Miners,

Well-Borers and Water Companies.

M. PRAG is now prepared to manufacture Hydraulic and Artesian Well Pipes in the best workmanlike manner, and at the lowest market rates. Having made large additions to my stock of machinery for that branch of business, I am prepared to fill all orders with dispatch, and guarantee entire satisfaction. I also manufacture Mississippi Stoves, of the latest improved pattern, for vessels of all classes. Also, Ship Plumbing done.

M. PRAG,

8V13-ly Stove Store, No. 125 Clay street, below Davis.

HOWE & STICKNEY,

MANUFACTURERS OF

Models for Patent Machinery.

All kinds of

Silver-Plating, Locksmithing, Bell-Hanging,
etc., executed in the best manner.

No. 625 Mission street, near Second.

REMOVAL.

E. O. HUNT'S

Manufactory of

Windmills, Horse-Powers

and Pumps.

Has been removed from the old

stand on Second street, to

114 and 116 Spear st.,

Next above Stuart and south of

Mission St., San Francisco.

Hunt's Patent Wind-Mills, Tread

Horse-Powers, Sweep Horse-Pow-

ers, (for one or four horses), Saw-

ing Machines, Pumps of all kinds

for shallow or deep wells, in-

cluding Hunt's Submerged Pump,

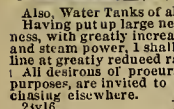
Hunt's Oble Pump, and Hunt's

Single and Double-Acting Pump.

Pumping Machines and general

Machinery kept constantly

on hand and built to order.



Also, Water Tanks of all sizes.

Having put up large new buildings specially for my business, with greatly increased facilities in the way of room and steam power, I shall be able to build everything in my line at greatly reduced rates.

All desirous of procuring water for irrigating or other purposes, are invited to examine my articles before purchasing elsewhere.

E. O. HUNT, Proprietor.

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MORRILL'S

Petroleum and Universal Oil Stoves

Have proved themselves a superior substitute for Wood and Coal Stoves, in that they work quieter, are neater, bake and broil better, are MORE ECONOMICAL generally. They are portable, can be used in any room, with or without chimney, as they emit no smoke, soot or ashes. There are nine different sizes, designed for barbers, dentists, and other mechanical purposes—as well as for cooking. They are perfectly safe.

I now offer a reward of \$100 for every Petroleum Stove exploded by Naphtha delivered at my store, 18 Geary street, where they are for sale by

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Proprietor of Petroleum Stove for California, and Agent for Universal Oil Stove for Pacific Coast.

N. B.—Petroleum Stoves burn Naphtha converted into a gas. Universal Oil Stoves burn Naphtha, Benzine, or Coal Oil, with non-illuminating flame and light on a wick as easy as a lamp.

2V16-3m

PACIFIC

FILE, REAPER AND MOWER SECTION
Manufactory,No. 53 Beale St., bet. Market and Mission,
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Files re-cut, and warranted as good as new, or no charge. Reaper and Mower Sections manufactured. The only establishment on the Coast.

23V First premium awarded at the State Fair, 1867.

23V15-3m DURNING & KENNEY, Proprietors.

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Keep constantly on hand a large stock of best Bar and Bunde Iron, Boiler Tubes, Plate and Sheet Iron, Gas and Water Pipe, Anvils, Cast Steel, Gas and Water Fittings, which they offer to the trade on liberal terms.

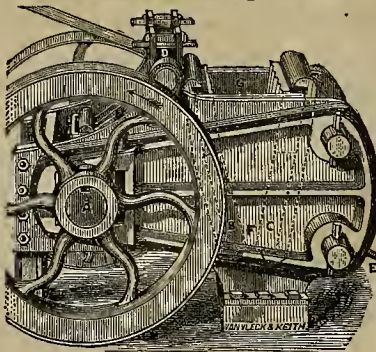
2V16-3m W. MCKINDLE, Manager.

Fire-Brick and Fire-Tile.

THE UNDERSIGNED KEEPS ON HAND A GENERAL assortment of Fire-Brick, Fire-Clay, Brick-Dust, and Tiles of different sizes. LIME, PLASTER AND CEMENT. Corner of Market and First streets, San Francisco. Branch Store, Sixth street, Sacramento. Millmen and Gas Companies supplied at short notice.

7V16-6m H. T. HOLMES.

Brodie's Patented Improvements



FOR THE TREATMENT OF

Gold and Silver Ores.

BRODIE'S PATENTED IMPROVED QUARTZ CRUSHER. The attention of all interested in Mining is respectfully called to this Improved Machine for Breaking or Spalling Quartz, or other Rock, possessing, as it does, simplicity of action and lightness of construction, so far as is compatible with strength and durability. In consequence of these advantages, the advertisers are enabled to offer these machines to the public at the following low terms:

No. 1—Or 10-inch Crusher, capable of reducing from three to four tons of quartz per hour, no piece being larger than a walnut—price.....\$600

No. 2—Or 15-inch Crusher, capable of similarly putting through five to six tons per hour.....\$850

No. 3—Or 18-inch Crusher, will in a similar manner crush from seven to eight tons per hour.....\$1,200

These Crushers have been erected at several mines in the State of Nevada, and others in Calaveras, Tuolumne and Mariposa counties, to whom applicants can be referred as being the most efficient, cheapest, and least weight compatible with strength and durability, of any Crusher yet erected.

BRODIE'S PATENT IMPROVED GERMAN AMALGAMATOR BARREL.—This Barrel obtained a premium at the Fair of the Mechanics' Institute in San Francisco, in 1864. Further particulars will be afforded on application to the subscribers.

A diagram, with explanations of this machine, will be found in the "Mining and Scientific Press," of September 29th, 1866.

BRODIE'S PATENT WIND-BLAST SEPARATOR FOR DRY CRUSHING.—Diagrams and explanations afforded on application to the subscribers.

A drawing and full description of this machine will be found in the Mining and Scientific Press of Sept. 22d, 1866.

JAMES BRODIE, Fulton Foundry, or CHARLES RADCLIFFE, Express Building, 402 Montgomery street, San Francisco.

12V13F

C. F. TRAVIS,

Manufacturer of

FRENCH

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Mill-Stones,

AND

PORTABLE

MILLS.

Agent for

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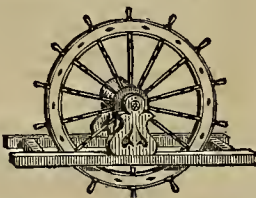
Celebrated

DUTCH ANCHOR BOLTING CLOTHS.

Mill Picks, Mill Picks Dressed, Mill-Stones Reamed and Rebuilt, Mill-Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS, 109 Mission street, San Francisco.

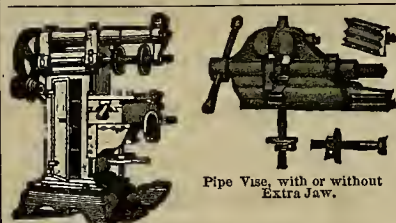
5V16F

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STEERING WHEELS

ON HAND AND MADE TO ORDER.
JOB WORK done to order, at the shortest notice.
Main street, between Folsom and Harrison,
23V16-3m San Francisco.



Pipe Vise, with or without Extra Jaw.

Standard Milling Machine.

UNION VISE COMPANY,

OF BOSTON.

Make Vises of all sizes and kinds, for Machinists, Blacksmiths, and all other heavy mechanical work. Wood-workers' and other Vices, with Covered Screw, for general mechanical work. Standard Milling Machines, very simple and easily adjusted. Address, Boston, Mass.

23V16-4y

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AN ENTIRELY NEW AND SUPERIOR ARTICLE OF An exclusively mechanical preparation, made to order on short notice, and for sale by H. ROYCE, at 435 Brannan street, between Third and Fourth. Refers to Eilen Bros, Pioneer Mills; Martin Stern, National Mills; Horace Davis, Golden Gate Mills; also, N. W. Spaulding, Saw Manufacturing.

6V16-3m

NELSON & DOBLE,

AGENTS FOR

Thomas Firth & Sons' Cast Steel Files, Etc., Shear, Spring, German, Plow, Blister and Toe Calk Steel; manufacturers of

Mill Picks, Sledges, Hammers, Picks, Stone Cutters', Blacksmiths' and Horse-Shoers' Tools,

319 and 321 Pine Street,

Between Montgomery and Sansome, San Francisco.

10V14F



A SAFE, CERTAIN, AND Speedy Cure FOR NEURALGIA, AND ALL NERVOUS DISEASES. Its Effects are Magical.

It is an UNFAILING REMEDY in all cases of Neuralgia Facialis, often effecting a perfect cure in less than twenty-four hours, from the use of no more than two or three PILLS.

No other form of Neuralgia or Nervous Disease has failed to yield to this

WONDERFUL REMEDIAL AGENT.

Even in the severest cases of Chronic Neuralgia and general nervous derangements,—of many years standing,—affecting the entire system, its use for a few days, or a few weeks at the utmost, always affords the most astonishing relief, and very rarely fails to produce a complete and permanent cure.

It contains no drugs or other materials in the slightest degree injurious, even to the most delicate system, and can ALWAYS be used with

PERFECT SAFETY.

It has long been in constant use by many of our most

EMINENT PHYSICIANS,

who give it their unanimous and unqualified approval. Sent by mail on receipt of price, and postage.

	Price.	Postage.
One package.....	\$1 00	6 cents.
Six packages.....	5 00	27 "
Twelve packages.....	9 00	48 "

It is sold by all wholesale and retail dealers in drugs and medicines throughout the United States, and by

TURNER & CO.,

Sole Proprietors,

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TO SPORTSMEN.



THE UNDERSIGNED, HAVING BEEN APPOINTED Sole Agent for the Pacific Coast for the sale of RUPE'S BREECH-LOADING SHOT GUN, which discharges four shots in two seconds, circulars will be furnished by applying to or addressing

HENRY EITEL,

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Or Lock Box 1172 P. O., San Francisco.

18V15-2m6m

SCREWED BOOTS.

LUMSDEN'S CALIFORNIA APPARATUS

FOR THE MAKING OF

SCREWED BOOTS.

Patented Feb. 21st, 1868.

PRICE, \$50.

With this cheap and valuable Invention, Boots and Shoes can be made on lasts, with or without being plated, in any style that is required. The State Right will be disposed of at figures that will afford the purchaser an opportunity to realize a fortune.

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Nevada House, 51 Stevenson St.,

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A Book for Every Miner and Scientific Man.

JUST PUBLISHED,

KUSTEL'S NEW WORK,

CONCENTRATION

Of all kinds of Ores, and the

CHLORINATION PROCESS,

For Gold-Bearing Sulphurets, Arseniurets, and Gold and Silver Ores generally.

Price. - - - - \$7.50

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Montgomery street. Prices reduced to con-

form to Association rules. Patent secured.

25V15-6m

Fire, Hose and Machine Belting.

THE SUBSCRIBER CONTINUES TO MANUFACTURE Oak Tanned Leather Fire Hose, warranted superior to Eastern Hose, manufactured at the Sixth Street Tannery, San Francisco.

JOHN J. FULTON.

Power for the Aeronaut.

In connection with an allusion to the coming exhibition to be held in London, under the auspices of the Aeronautical Society, *The Engineer* takes up, one after the other, the various plans which have been proposed for the propelling of flying machines. Not of balloons,—for those, it thinks, are out of the question;—if a flying machine is to be made at all,—it says,—it must be made without a balloon. The steam engine, hot-air engine, condensed air, and even coiled steel springs,—to be wound up by power while the machine is on the ground,—have been at different times talked of. Each of these is in its turn alluded to, and the various objections to each are stated. The article closes thus:

"In what direction then, exclaims the aeronaut, am I to seek for what I want? Is it a fact that we are so ignorant and helpless that, with all our knowledge and science, we cannot get power except in combination with great masses of metal? In a sense satisfactory replies mark out the path which the would-be flyer must tread. The engineer cannot help him to a motor. Let him seek the chemist and demand an answer to his second query. There are more ways than one of obtaining power known to chemistry, of which engineering has as yet taken little or no cognizance; of only one of these it is necessary now to speak. Solidified or liquefied carbonic acid represents the very incarnation of concentrated power. Under a pressure of 36 atmospheres, or about 530 lbs. per square inch, it liquefies at the temperature of 32° Fah., and if time be allowed for it to take its heat from the air, by permitting it to expand slowly, it will exert an enormous pressure. No successful carbonic acid gas engine has yet been constructed, probably because few attempts have been made to do so; but we believe Brunel actually made an engine worked by the gas. Such a machine could not prove of any practical utility except under such conditions as those imposed by the difficulties of aerial navigation; it would be rash, therefore, to decide that the gas cannot be used for the required purpose. It is true that the vessel containing it under pressure must be very strong; still but a small quantity of the gas need be carried, and therefore the weight of the vessel would not be great. As to the practicability of making a carbonic acid gas engine, it may reassure our readers to learn that Thilorier, who first liquefied the acid, in company with Brunel and many other men of science, held that the thing was perfectly possible; and for ourselves we hold that if there is sufficient stimulus held out the problem will be solved, and a carbonic acid gas engine made."

PRESERVATION OF FLOWERS.—The following is an excellent method of preserving flowers for an unlimited time in all their natural colors: A metallic vessel is provided with a movable top and bottom. The top cover is removed, and a wire gauze of moderate fineness is fitted into the top of the vessel, when the cover is replaced. Sufficient sand to fill the vessel is first sifted, and then placed in an iron pot with a small quantity of stearine,—about half a pound to one hundred pounds of sand.. The mixture is heated, and carefully stirred, so as to diffuse the stearine. The first vessel is then turned upside down, the bottom cover removed, and the flowers to be operated on are placed in the wire gauze, after which the prepared sand is gently poured in so as to cover the flowers entirely, the leaves being thus prevented from touching each other. This vessel is then put in a hot place—such, for instance, as the top of a baker's oven—and left for forty-eight hours. The vessel is then taken out, and while still bottom upward, the lower cover is removed, and the sand runs out through the gauze, leaving the flowers uninjured and dry, yet still retaining their natural colors.

TO NEUTRALIZE LOCAL MAGNETIC ATTRACTION.—Faraday has shown that if a small cubical space be inclosed by arranging square bar magnets, with their like poles in apposition, so as to form a chamber, within that space all local magnetism inferior in power to the magnets employed, will be neutralized. The same effect may be obtained with electro-magnets as with permanent magnets, and it is proposed in the *Mechanics' Magazine* thus to inclose the compass of an iron ship, as a remedy for the deviation by local attraction. A battery might be constructed to be excited by the sea water flowing through it, requiring no attention as long as the zinc plates lasted.

HEAVY ORDERS.—During the month of November, 1867, F. Krupp, of Essen, Prussia, received orders from Russia for fifteen hundred steel locomotive tires and eighteen hundred car-wheel tires, and from the East Indies for one thousand locomotive tires; he also received orders from the Spanish Government for two hundred steel four-pounder field-pieces, and from the Prussian Government for twenty-three 9-inch steel cannon; also orders for four steel double-cranked shafts, weighing twenty-seven thousand pounds each, for the Hamburg and Bremen steamships. In the month of March, 1868, Mr. Krupp received orders from the Russian Government for forty 9-inch guns, and from the Turkish Government for one hundred and twenty-six four-pounders. The price of each of the steamship shafts was \$14,000 in gold, and the Russian order for guns amounted to three-quarters of a million dollars in gold.

VALUABLE Practical and Scientific Books,

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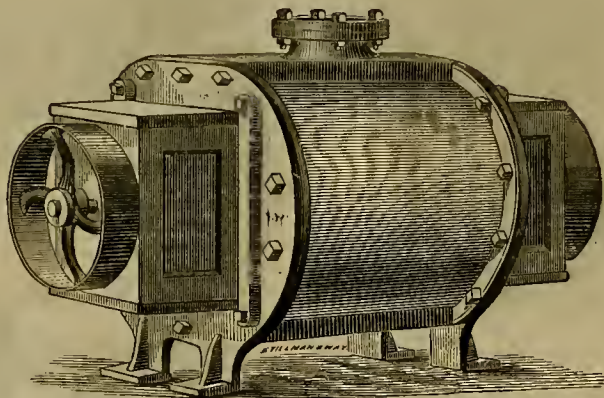
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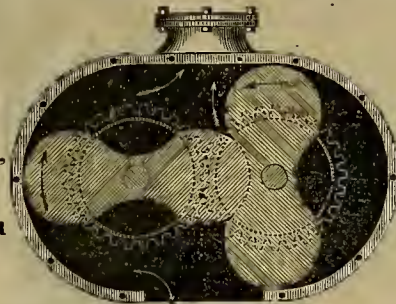
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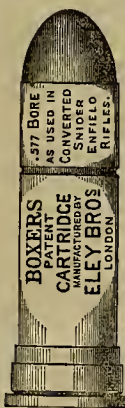
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Governments cannot be over-rated, and the Proprietors of the
Press, feeling the responsibility which rests upon them, and
the reward which must follow the faithful performance of
their trusts, will take care to afford inventors every advan-
tage to be secured to them through a competent and re-
sponsible agency upon this coast.

THE PACIFIC PLATE WORKS.—The importers of silver-plate ware, in this city, have always labored under very great disadvantage in getting their goods out, by reason of the rough usage to which they have been subjected, resulting in bruises which it has been impossible to entirely repair, and generally to more or less discoloration, arising from chemicals employed in the process of plating. The establishment of the Pacific Plate Works is expected to overcome all these difficulties, by furnishing to its patrons goods freshly plated and perfectly free from the scratches and bruises incident to the imported articles. It is also expected to answer a want long felt here for the replating of articles, which were never properly plated, or from which the silver may have been worn by long use.

Persons having in their possession family relics, can have them restored and rendered nearly as beautiful as originally, by application to the agent of the works. Hotels and restaurant keepers can have their castors, spoons and forks, plated with any required thickness of silver, instead of being compelled to accept the trashy, imported goods, having a coating with little more than the color of silver upon it. There is not a person in the community who is not almost daily disgusted with having a brassy spoon and fork furnished him at the restaurant.

The establishment of the Pacific Plate Works will render such a nuisance no longer excusable. The name Pacific Plate Works, being stamped upon any article, may be taken as a guarantee as to its character. The agents of these works inform us, that they will keep always on hand a large stock of goods ready to be plated at a very short notice with any stipulated quantity of silver, to suit the taste of the purchaser. Ice pitchers, which have now come to be considered an essential in every family, will be furnished with a great variety of designs, and persons intending the voyage *via* Panama, can have their want in this line answered by a 48-hour notice given to Messrs. Haynes & Lawton, the agents of the works, and through whom all the business will be transacted, at 520 Sansome street.

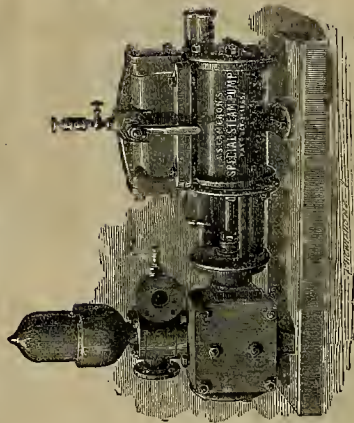
TRADE-MARK DECISION.—In the case of the Standard Soap Company *vs.* Lucy & Hymes, for infringement of trade-mark in making washing powders, the Supreme Court of California has just delivered an opinion dissolving the injunction, and holding that the name of the article, "Washing Powder," which the plaintiffs claim as constituting the principal part of their trade-mark, are words in common use, merely descriptive of the article; do not denote origin or ownership; are not peculiar marks, symbols or devices (as the Statute provides), and cannot be claimed as a trade-mark. The other portions of plaintiffs' label, which they claim as a trade-mark, are entirely dissimilar to defendants', except the bill of directions as to how the article should be used, which is claimed by the majority opinion as being common English language, open to all, except by copy-right, which the Legislature has no power to grant. The dissenting Judges concur on all points except the last mentioned, which is, that the defendants, in copying the plaintiffs' label *verbatim*, infringed that much on their trade-mark, and should have been restrained, but that the injunction granted was too broad, and should not have prevented Lucy & Hymes from making and selling Washing Powder, which is merely soap pulverized, and which every one has a right to make, without being broken up in their business by pretended monopolists.

NEW WASHING FLUID.—Mr. C. G. Kelley, of this city, has recently devised something new in the way of a washing fluid, which is represented as affording very reliable aid in the laborious household duty of washing. It is said to work with success with salt-water, and is therefore valuable for use at sea. This compound is manufactured and sold by C. G. Kelley & Co., at 215 First street, in this city.

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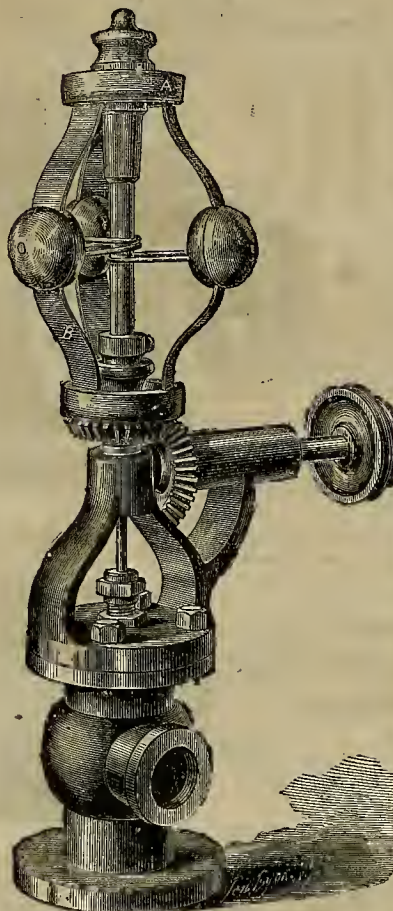


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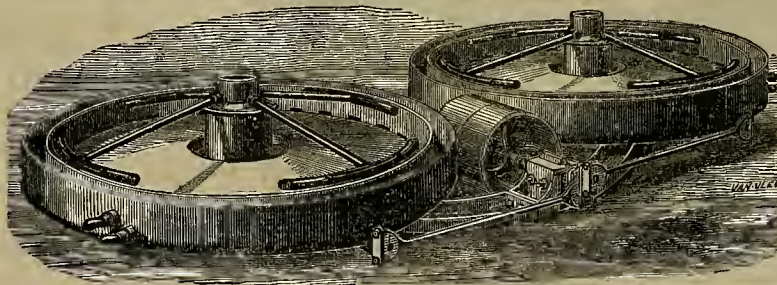


FIG. 1.

There is no description of machinery of so much importance to the mining interests of California, at the present time, as that for the separation of sulphurets. Mines are now abandoned, or, what is worse, paying assessments, which, if the sulphurets were saved, would yield handsome dividends. Great difficulty, owing to the varied form and character of the sulphurets, has been experienced in devising a machine to separate them; and it is only by close and patient observation, persevering study and careful experiment, that any machine can be made or matured so as to save a large percentage of them. The best is that which saves most with the least expenditure of time, money and power. Many have been tried, and abandoned; and none seems to meet the requirement of the mining interest so well as that now patented by Mr. Hungerford, which is an improvement on the well-known Hungerford & Prater Concentrator, with which his name is already so familiar.

Fig. 1 is a perspective view of that pan as now constructed. For economy of space and machinery, one shaft is made to drive two pans, which are set and arranged as shown in the engraving.

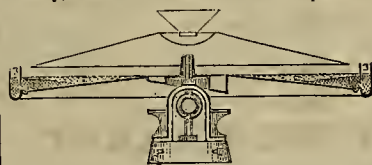


FIG. 2.

It should be borne in mind that Mr. Hungerford is the original builder and maker of the celebrated Prater Concentrator, and his name should be sufficient guarantee to warrant the public in examining his new machine before purchasing elsewhere.

RECOMMENDATIONS:

OFFICE OF THE ONEIDA MINING COMPANY,
JACKSON, May 13, 1868.

Mr. MORGAN HUNGERFORD—Dear Sir:—In regard to the four Hungerford Concentrators that I bought of Messrs. Goss & Lambard, last month, I will say that I put them up in the Oneida Mill soon after I arrived here, and find that they save sulphurets well and clean, and work to my entire satisfaction. I have tried many other concentrators, but these stand up and work better than any other I have used. I have ordered Messrs. Goss & Lambard to make eight more for me as soon as possible.

Very truly yours,

JAMES MORGAN.

BIG OAK FLAT, May 23, 1868.—Mr. Thos. Mulford—Dear Sir:—I have used two of Mr. Hungerford's Concentrators in the Rattlesnake Quartz Mill, at this place, and find that they work full as well as they are represented to do.

These Pans can be seen at the Pioneer Mills, entrance on Stephenson street, San Francisco. In future these Pans will be manufactured exclusively by GOSS & LAMBARD, of Sacramento, which is a guarantee that they will be built in the most substantial manner. Price, \$300. Address, Goss & Lambard, Sacramento, or M. HUNGERFORD, San Francisco.

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Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

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The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and expensive.

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SAN FRANCISCO, SATURDAY, JUNE 27, 1868.

VOLUME XVI.
Number 26.

The Mechanics' Institute Fair and Pavilion.

Active progress is being made in the erection of the Pavilion for the approaching Fair of the Mechanics' Institute. The structure will be most admirably fitted to the purpose for which it is intended. It will be spacious, well lighted, and form a most commodious and convenient room for exhibitors. Ample space will be allowed for avenues by which visitors may pass to and fro, without inconvenience. The central space, under the nave or archway, flanked by opposite galleries, will present a really imposing appearance,—the open space between the galleries being 75 feet wide by 285 in length, and the distance from the floor to the top of the arch nearly 70 feet. The center of this parallelogram will be occupied by a fountain, surrounded by a most magnificent floral display. We understand that the horticulturists of the city and surrounding country have signified their intention to make this portion of the exhibition superior to anything yet seen, even in San Francisco. The beautiful collections of nature brought into existence and nurtured beneath the genial skies and balmy breezes of California, it is well known cannot be surpassed in variety and magnificence in any part of the world, and the determination is expressed to make the most of this elegant display.

A very general disposition is being manifested, on all sides, to render the forthcoming Exhibition one which shall be in every way worthy of the great interests which are to be therein represented. Although it may not partake of that cosmopolitan character which was originally intended, it will nevertheless be quite superior, both in detail and combination, to any which has preceded it on this coast.

The Exhibition will open on Saturday, the 8th of August. Already, we are told, the Art Gallery is entirely taken up, and the promenade galleries will have to be largely occupied for that portion of the exhibition. Two-thirds of the main floor has also been spoken for. It is a fact most gratifying to all that every foot of the Pavilion can be occupied with articles of California and Pacific Coast manufacture, without the admission of anything of foreign or Eastern make. The array of machinery will be very large, and will possess unusual interest. Three steam engines, certainly, if not four, each containing points of novelty and interest, and all made in this city, will be exhibited in such a manner that the working capacity of each can be fairly and fully tested. The show of mining machinery will be full.

It is to be hoped that California inventors will very generally take advantage of this opportunity to make known their invention by models or otherwise. There is no community on the globe, of equal extent, which has made a more marked progress in the inventive art during the past two years, than the inventors of California; and they will be unfaithful to their own in-

terests if they fail to present the results of their ingenuity at this exhibition.

The "art preservative of all arts" will occupy its usual place and prominence on this occasion. The executive committee have granted to the publishers of the MINING AND SCIENTIFIC PRESS the privilege of again issuing their DAILY FAIR PRESS in the Pavilion during the continuance of the exhibition; so that inventors and exhibitors will find at hand a convenient organ through which to spread before the public the advantages of their exhibitions.

The Institute appeals to all persons within the scope of its influence, who are engaged in any of the various branches of

Hackett's Improved Passenger Register.

We give herewith an illustration of an improved passenger register, designed to be attached to the ordinary seats of railroad cars, and so constructed that the various stations along the line will be indicated by a card placed convenient to each passenger. By the same device the number of passengers that enter a car and seat themselves can also be registered, as well as the particular station at which they take their seats and leave the same. This device has been invented by John C. Hackett, of Sacramento.



HACKETT'S IMPROVED PASSENGER REGISTER.

industry and art, to forward for exhibition such articles as they may have invented, discovered or made, and which may be useful, instructive, curious or suggestive. Those who intend exhibiting, and who have not already signified their intention to do so, should make the fact known as soon as possible, in order that the necessary room may be allotted to them. The California Steam Navigation Company and the San José Railroad, and we presume the Central Railroad, will transport packages to and from the exhibition free of expense.

THE BRANCH STATE PRISON.—Just at the close of the last season a bill was introduced and passed authorizing the establishment of a Branch State Prison at Folsom, and the expenditure, under the Board of State Prison Directors, of \$15,000 to secure the title to the land "at such a time as the Board may hereafter determine to be judicious." It now appears that the Board are slow in determining the time when it will be judicious to expend this money, and so the matter rests, and, in all probability, will rest for some time to come.

The engraving represents a section of the interior of a car, with the name of the station which the car is at the moment approaching. The names of all the stations on the route are placed on a circular disk, concealed within the wall of the car, as shown—each station in the order in which it is reached. These disks are operated by the conductor or brakeman—all the disks on a given car being operated simultaneously by the turning of a crank. A disk is placed for each seat, and a small opening in the wall allows the passenger to see at a glance the name of the station which he is approaching, as soon as it is brought to view. The attention of the passenger is also called to the act by a click, which he will hear within the wall at the instant the name of the next station is indicated.

The seats, when unoccupied, are intended to be turned up, as shown in the engraving. When a passenger enters the car the seat must be turned down before occupying it. The act of turning the seat down is registered on the machinery within the wall, as well as every station which its oc-

cupant may pass. Hence when he leaves his seat, at any station, the absence of the usual indication shows that that seat is then unoccupied. The next passenger which occupies the seat, invariably registers his presence and occupation of the seat, as already described. On arriving at the end of the route, the superintendent or other officer designated for such purpose, and who may have the key to the register, can readily determine the total number of passengers who have entered and left. This device thus gives the superintendent an effectual check upon the returns made by the conductor.

Applications for letters patent for the above invention have been made through the MINING AND SCIENTIFIC PRESS AGENCY. The invention will be more fully described when the pending application shall have been consummated.

THE SUTRO TUNNEL.—A bill has been reported in Congress granting six per cent. bonds to the amount of \$5,000,000 in aid of the Sutro Tunnel; the bonds to be delivered at the rate of \$15,000 for every 100 feet of tunnel completed, and to be secured by a first mortgage to the United States on all the net profits of the tunnel until the bonds are canceled. Whatever may be said in regard to the policy of such an appropriation (and much may be said both for and against it), Mr. Sutro is certainly deserving of much credit for the energy he has displayed in his efforts to carry out this important work. He has recently published at Washington an elegant quarto volume, containing a large amount of information bearing upon this work, from which it appears that he has given the subject much careful thought, and availed himself of the advice of the most skillful experts and most eminently practical men which the country affords. A fine map accompanies his published volume, giving a most distinct idea of the topography of the country for several miles about Virginia City, with the direction and location of the tunnel, reserved leads, etc.

The time is fast approaching when the Sutro Tunnel will be a work of necessity, and we hope that Congress will at once assist the enterprise in amount sufficiently liberal to secure its success.

THE TIDE LANDS.—The tide land commission appears to be entering upon its duties in a broad and enlightened manner. Individual and present advantages are likely to be ignored in deference to the magnificent future which evidently awaits our city. This harbor is destined to become one of the most important on the globe; and it is well that those under whose direction it is to be formed and shaped should take a broad and far-reaching view of their duty. The city front, thus far, has been most wretchedly managed. Let us hope that what is left will be properly utilized for the good of the future, and not for the gain of the present generation.

This issue closes the present volume of the MINING AND SCIENTIFIC PRESS. Next week the paper will present some new features, of which we shall then speak.

Communications.

IN THIS DEPARTMENT we invite the FREE DISCUSSION of all proper subjects—correspondents alone being responsible for the ideas and theories they advance.

[Written for the Mining and Scientific Press.]

The Late Discovery in Mammoth District.

ABOUT THE WEATHER.

I will be brief on this convenient subject; but the unusual manner in which the fickle old clerk does up the business hereabouts, this season, calls for remark. Usually the little snow that falls in this section during the winter, melts away from all but the higher peaks by the middle of March. Even the hardier varieties of grass and early flowers, in their baste, push their modest blades out from under the very edge of the snow banks early in March. This season, since the beginning of April, we have had a succession of showers, snow-squalls and respites of sunshine, all gratefully appreciated, as shown by the dense, luxuriant growth of grass that covers vale and mountain, even to the black, towering crags of basalt that top the highest ranges; not so acceptable, however, to the unsheltered prospectors in this vicinity.

WE MUST EAT,

but the question has been with all in this section for the past month, what shall it be? the miry condition of the roads between this and the present terminus of the railroad, has delayed the arrival of goods which are on the way to this region in large quantities. All the staples of food have been exceedingly scarce, or, I should say, not to be obtained at any price until recently. Provisions are now, however, arriving, and prospectors are gradually returning to their work, which they had temporarily abandoned in search of "grub" among such of their acquaintances as were more fortunate in having a supply.

MARBLE FALLS.

The owners of the original location on this ledge are stripping or removing the surface earth from about their immense outcrop of quartz. This work they propose to carry to the extent of their ground before sinking on it. The discoveries made as this work progresses are of the most surprising richness; the ledge is now cleared of the debris for 400 feet, showing it to be continuous, with several chimneys where it expands, in some cases to the apparent width of forty feet, (this great width will, in all probability, not continue.) So much has been said of the wonderful richness of the ore that I pass details in this letter; it may be comprehensive enough to say, that the expression of all who see it, is that it is the largest and richest body of ore ever found in the outcrop of any ledge. What it may prove below, is something for conjecture only, though the evidence of permanence would seem conclusive. No company should desire more than is to be seen in these outcroppings, and this seems to be the expressed feeling of the owners.

MORE LEDGES.

Contrary to the first impressions, this belt (by which I mean the formation in which the first discovery was made), is proving both extensive and rich in the extensions of the original ledge, and in other distinct lodes. On the second northwest extension the work continues, and, as shown by the accumulating pile of ore (principally silver ore,) the claim has but few equals in point of richness, although the vein is comparatively thin on this location. Southwest of this claim the owners of the Piute ledge are doing permanent work. They are now down ten feet, with an open cut and shaft twenty feet by ten. So heavy is this lode that the shaft is entirely in quartz. From thirty to forty tons of ore have been taken from this shallow opening. It is not of the extreme high grade that characterizes some of the others, but uniform and moderately rich, gold predominating. The Storm King and Holman ledges, on the opposite hill, are less developed, scarcely enough so to define their width, which is known to be eight feet in the former and five feet in the latter. The ore of these mines is also of uniform grade and has the advantage of being rich in silver, bringing the yield up to about \$300 per ton, as I am informed by Holman, the owner.

Mammoth Dist., Nye co., Nev., June 16.

The Mining Interests of the Pacific Coast.

Mr. Louis Falkenan, of the Pacific Chemical Works, read the following paper on the mining interests of the Pacific, before the California Academy of Sciences, at their regular meeting on the 15th inst.:

MR. PRESIDENT AND GENTLEMEN:—You have honored me by the allotment of a task which is highly gratifying to fulfill, and which I have undertaken with a full sense of my inadequacy of power to accomplish. If I do not shrink from the undertaking, you may ascribe it to my implicit confidence in your leniency, and to the hope which I cherish that my humble efforts may serve to open the way to those better fitted for the championship of the cause I espouse.

The mining industry of this coast, forming its chief source of wealth and prosperity, is so closely linked with our individual and social interests, that its past, present and future must naturally be constantly before our minds, and it would be more than arrogant on my part, should I presume to enlighten you on a subject upon which the greater majority of you gentlemen are far better informed than I am.

Let us, therefore, only cast a cursory glance at the present stage of our mining development and its prospects for the future, upon the results of which I can base my ideas of the ways and means for its advancement. After a long period of wild, wasteful management—or better said mismanagement—during which it was the sole object of the miner to wrest the greatest possible amount of treasure from the earth, in the shortest possible time,—we have now arrived at a period where the consequences of such a mode of proceeding begin to be felt, and the question arises as to the best means to remedy the growing evil. Our creeks and rivers,—the veins through which the current of commerce should naturally flow,—have been partly rendered impracticable, and are still becoming more so from year to year. Millions of wealth have been made inaccessible for generations to come, and millions lost for ever. Were we to continue in the course pursued hitherto, we would be doomed to see the rapid decline of our wealth and prosperity. But as every evil bears its own cure, sad experience will ultimately lead to a more rational system, and I fear it is the opinion of many that, by these means only, the evil can be overcome—a principle which holds good in many questions of social economy, but which can not be brought to bear upon this particular one. The damage done is irreparable; and with the full experience necessary to obviate all disastrous consequences for the future, we would arrive at a point where it would be too late to make them available.

Tempting though it may be, I shall not discuss the question of the limits to which legislation is justified and advantageous in the premises, as I deem it to be outside of our scope, and prefer confining myself to those boundaries within which our Association can exert its powers for the public good.

If we try to arrive at the root of the evil, we shall find that it may be chiefly attributed to two causes, viz: The want of knowledge and experience, and the reckless thirst for gain. It is only the former that we shall have to deal with in order to gradually force the latter into the boundaries to which a proper regard for our common welfare must confine it.

The diffusion of knowledge in general alone, would hardly suit the emergency of the case; it would only prepare the way for imparting that more directly applicable to mining pursuits. If it is the endeavor of the nation to found mining colleges, it should be that of the scientific public to insure their future, by impressing those who are to be more directly benefited by them, with the importance and utility of acquiring the knowledge thus made accessible to them.

The promotion of science is the object for which this body has been formed; let us consider in how far this object is connected with the diffusion of knowledge, general or special.

Science is the systematic arrangement of practical experiences and speculative deductions into one harmonious organism. Innumerable facts are collected into fundamental principles, and linked by the experimental and speculative work of generation after generation to an edifice continually nearing perfection, but infinite in its growth.

To promote science it is not sufficient merely to lend a helping hand to its internal development. An equally powerful agent for its advancement is indicated by the spirit of our age, which is signalized by the

practical application of science in contrast with the scholastic tendency of past times. To popularize science,—that is, to impart knowledge, to put to practical use the results of mental labor,—is to constantly increase the number of our fellow laborers in a great and holy cause, to do our share in accomplishing the end and aim of all science—the moral and physical benefit of mankind. It is that spirit only that enables our efforts, which, without it, would ultimately sink down to the result of a passion for certain pursuits which gratify our inclinations.

The popularization of science by diffusion of knowledge is therefore within our province, and it would not be easy to find a spot on our globe where this field of labor could be more beneficially cultivated.

So far I have only theorized. Allow me now to enter on the ways of putting into practice the results at which we have arrived.

I would propose to you nothing less than the establishment of a scientific mining and metallurgical bureau, in connection with the Academy, whose aim should be to obtain all possible information on the branches of industry mentioned, and diffuse the same by gratuitously furnishing it to all, and especially to those who apply for such information.

The institution should be connected with a suitable laboratory and an extensive library of works appertaining to mining and metallurgy, and it should be its aim to thoroughly investigate all questions propounded to it, and to publish all the information gained, in a shape easily accessible to miners and millmen. A cabinet of minerals, collections of models, and drawings of machinery, etc., would also form part of its requisites. The means necessary to such an undertaking should be raised by subscription among the citizens of San Francisco and of the State, and from other sources which I leave to be suggested by those who can better decide on that point. An institution such as I have but roughly outlined would meet with sufficient sympathy to support itself, and would accomplish the end in view in a shorter period of time than any other mode of proceeding. In connection with this, popular lectures on those subjects, as well as others of a scientific nature, by members of the Academy or distinguished guests, should extend the field of our usefulness.

If I have particularly referred to mining as the branch of industry to be kept in view, I would not have you think that our labors in time are to be confined to it. Agriculture, the arts, manufactures and handicrafts, would all be equally worthy of our attention and the communication of knowledge, which has no direct practical application, but serves to widen man's heart and mind, such as history, archaeology, etc., would equally have a share.

The means for diffusing knowledge at our disposal are only bounded by pecuniary considerations; our library, our collections, and the number of our members who would be able and willing to aid the cause in view, would go very far toward accomplishing the desired end. It is my firm conviction that it only needs the initiative step on our part to make away with all pecuniary obstacles. Suitable halls for lecturing might, to commence with, be obtained in some school house or college, and as our endeavors become known and appreciated, we will no doubt soon find either the authorities or the public willing and able to provide us with premises, where our collections and our library could be made more generally beneficial, and our meetings might be attended by all who take an interest in the subject discussed. Even if we were compelled to commence our labors on the smallest possible scale, they would soon awake the sympathy of many, increase our ranks, and enable us to do better in time. Written communications of a popular nature, would always find a hearty welcome in our principal papers, and go far toward accomplishing our end and extending our scope. I have long cherished the idea which I have put forth, and have gladly availed myself of this opportunity to lay them before you for discussion. Let me sum them up into questions, whose thorough discussion I take to be the first step necessary in the premises:

1st. Is it within the province of the California Academy of Sciences to diffuse knowledge, both general and special, by all suitable means?

2d. Would that object be gained by the means aforesaid.

3d. What steps should and could be taken in that direction?

While popularizing science and rendering it attractive to all, we need not in the least encroach upon our more strictly scientific labors, and in endeavoring to make

science more generally beneficial, we will gain the means for its more special pursuits. I am far from wishing that my views, as expressed in the foregoing, should be adopted by you, on the spur of the moment, without being thoroughly ventilated. I tender them, such as they are, willing to be better informed wherever I may have misjudged, still anxious to see them carried out as far as possible, if they are correct. If we encounter difficulties, they will not be insurmountable to earnest zeal and the honest endeavor of men who strive to overcome each and every obstacle in the path of science and enlightenment.

At the conclusion of the lecture, on motion of Dr. Stout, the thanks of the Academy were extended to Mr. Falkenan.

FRENCH, DECIDEDLY.—The railway carriages on European roads are divided into compartments. Now if a couple of travelers desire to secure a whole compartment to themselves for their entire journey, they have only to frighten off everybody else who attempts to enter. Nothing is so sure to do this as a crying baby. To meet the wants, therefore, of such as wish to travel alone, some ingenious Frenchman has devised an artificial baby, which, when wound up, can be made to squall at will. The machine is duly advertised for sale in the French papers. The price varies according to the unbearableness of the scream. The best kind is ten dollars; the same, however, if the yell is unceasing, is fifteen dollars. A second class, not quite so bad, but still utterly unendurable,—is five dollars. Both of the above styles of infant are perfectly natural in appearance, and would deceive the most experienced nurse. A third class,—made emall, so as to be carried in the pocket, and with only occasional cries,—say when pinched,—\$2.50. Our French friends advertise them as from "America,"—probably because almost all the ingenious inventions originate here; but we think that in this case Johnny Crapeau is for once entitled to the sole credit.

ETCHING ON GLASS.—This is done with hydrofluoric acid, prepared with a mixture of fluor-spar and sulphuric acid. The glass is covered with a coating of beeswax, through which the design is sketched with a pointed instrument. The mixture aforesaid is then gently beaten in a leaden tray over a spirit lamp, and the glass held over it; the vapor of the mixture attacks the glass where the lines were made, destroying the surface and producing the picture.

THE WOODPECKER'S FORESIGHT.—A. B. Barton gives this item in regard to the woodpecker in California. He bores holes in a pine tree into each of which he fits an acorn. When this begins to decay, having been saturated with the winter's rain, it is attacked by maggots. These furnish choice provision for the bird at a time of year when he would find it difficult to supply himself elsewhere.

TO DRAW A RUSTY NAIL.—Strike it with a hammer to break the binding of the iron rust with the wood, and it may then be easily drawn. Common nails heated red hot and then dropped into cold water, will clinch, and, in a great degree answer the purpose of expensive wrought nails.

CHEESE FROM THE MILK OF SHEEP.—Roquefort cheese is a variety which no one has ever been able to imitate outside of that small French neighborhood. This cheese is made from the milk of sheep, and is supposed to derive its peculiar flavor from a "cave" in which it is stored for some time before it is sent to market.

BOTANICAL.—Tropical fruits and plants, such as oranges, lemons, bananas, etc., in every variety and in all the different stages of growth, may be seen at Woodward's Gardens.

It is estimated that the machinery of Great Britain does the work of four hundred millions of men.

Mechanical.

ELASTICITY OF IRON AND STEEL.—M. Knut Styffe, Director of the Polytechnic College at Stockton, has made a series of experiments on this subject. We quote from a summing-up of his conclusions given by *Engineering*: Between 100° and 200° C., i. e. above the boiling point of water, the strength of steel is the same as at ordinary temperatures; the strength of iron is greater at that heat than at 15° C., and this increase of strength occasionally amounts to twenty per cent. The pliability or "softness" of steel remains about the same in the cold and in the heat, up to 200° C. The softness of iron, on the contrary, becomes less as the temperature increases. The limit of elasticity, both of iron and steel, is greater in extreme cold. In the heated state, steel keeps about the same elasticity (up to 140° C.), while that of iron decreases about ten per cent. With regard to flexibility of girders, the influence of temperature has shown similar results, viz., iron can sustain a greater load in the cold than at ordinary temperatures without showing any permanent set, the modulus of elasticity, both of steel and iron, decreases gradually with an increase of temperature. Under all circumstances the influence of the changes of temperature is greater upon iron than upon steel, but the effect of great cold has not been found by M. Styffe's experiments to be the same as is popularly supposed. On the contrary, great cold, instead of making iron and steel weak and brittle, seems to have the very opposite effect. The breakages observed in very cold weather, particularly in railway practice, seem to be due to secondary causes, such as the freezing and hardening of the ballast and wooden sleepers, the unequal contraction of parts shrunk or riveted upon others, and to the direct action of ice formed within the joints and crevices of iron structures exposed to the influences of the weather.

NEW PLAN FOR CASE-HARDENING IRON.—Thomas Sheehan, of Dunkirk, N. Y., has patented the following:

"In a suitable cast-iron box put a layer of broken limestone, two inches thick. Over the said layer place a perforated plate. On the plate next put a layer, of about two inches in thickness, of a mixture made as follows: 200 parts charcoal, saturated with water; 30 pounds of muriate of soda; 12 parts of sal-soda, pulverized; 5 parts of rosin, pulverized; and 5 parts of black oxide of manganese. The ingredients thus specified well mixed. Take the iron intended to be steelified, and put it on the top of said mixture. Another layer of the mixture is now put on the iron, and alternate layers of iron and mixture supplied until the box is filled, always finishing with a heavy layer of the mixture. Care must be taken to prevent the iron designated to be hardened from coming in contact with the iron box. Lute the cover of the box with a mixture of yellow clay and sand, with a little salt in it to keep it from cracking. The box will now be put in an open furnace, suitable for the purpose, and a fire made of hard coal and wood, and keep the box subject to strong heat from two to seven hours, according to the size of the box and the bulk of iron. As the heat increases, the carbon will be expelled from the limestone in the bottom of the box, and will unite with the oxygen and carbonaceous ingredients of the charcoal compound as aforesaid, and will convert the iron in the box into steel on its entire surface. I then take said iron out of the box when it is of a bright cherry red, and chill it quickly in a large vessel of cold, clear water. The surface of the steelified iron will now be smooth, and free from scales."—*Scientific American*.

TO COAT IRON WITH COPPER.—The copper or other coating is to be melted in a suitable vessel, and a stratum of borosilicate of lead placed on its surface; the iron is then to be plunged into the molten metal, and retained there until a coating is deposited on it. Iron coated with the tin or lead may be treated in a similar manner. Another method of coating iron with copper is to place in a crucible a quantity of chloride of copper, upon which is laid the iron to be coated, and over that a quantity of charcoal. The crucible is then submitted to a red heat and the chloride of copper fused, and a coating of copper deposited on the iron; or the vapor of chloride of copper may be employed for the same purpose. The coating of copper thus obtained, may be converted to one of brass by exposing the sheet of metal to the vapor of zinc in a closed vessel.—*Sci. American*.

HEATON'S STEEL-MAKING PROCESS.—One great difficulty which chemists have had to contend with in treating molten iron with chemicals, was due to the small specific gravity of the chemicals as compared with that of the iron. Mr. Heaton hit upon the plan of confining them at the bottom, by covering them with a perforated iron plate, held in its place by projecting edges of brick-work. This insured the action upon the iron of the gases arising from them. The *London Mining Journal*, in a recent notice of this plan, says: "The specimens shown by the Langley Mills Company at Middlesbrough, all made by Mr. Heaton's process, from Middlesbrough iron, must have convinced the most skeptical that 'the great metallurgical problem of our time' is on the eve of being solved; and our visit to Langley Mill has confirmed our own expectation. There the company with whom Mr. Heaton is associated have expended a large amount of capital in the laying out, under Mr. Heaton's supervision, much of upwards of four acres of ground, with all the appliances necessary to the carrying out of his method upon a scale which will enable them to manipulate, by rolling and forging, some 600 tons of steel and steel-iron per week. They can convert that quantity with their present machinery, but they cannot complete much over 60 tons. Their preparations embrace two departments—the one the reverberatory, and the other the casting; the latter will embrace more than 40 crucible furnaces. The conversion of the pig-iron into refined metal occupies from three to seven minutes only, and instead of the lapse of nearly five weeks being necessary to produce crucible steel it can be made in a few hours. A forging of crucible steel, which was in the state of pig-iron at 11 o'clock in the forenoon, was, a few days ago, carried away by a party of visitors who left Langley Mill at 4 o'clock in the afternoon. Rolled steel could be produced in even a shorter time, for the puddler is altogether dispensed with, and the ball furnace alone used for purifying the metal of the sodium left in it after the converter has done its work."

WELDLESS STEEL TIRES.—Weldless steel tires are now manufactured in England by rolling. The mill which is used for this purpose consists of two sets of rolls supported by the same framework, but each set working independently of the other. Hydraulic power is employed to press the rolls together. The first set of rolls consists of a single pair. The operation of making a tire consists in placing a hammered ring containing enough metal to form the tire between the first pair of rolls in such a way that the ring incircles one of the rolls. It is then enlarged by rolling, and its section formed in the same manner as a straight bar would be drawn and shaped in ordinary rolling mills.

The second set of rolls is similar to the first, with the addition of two side rolls mounted upon a pair of jaws which can be opened and closed by toothed segments operated by a worm having a right and left-hand thread. These rolls finish the tire. Seventy to eighty horse-power are required to drive this mill, and the entire operation is completed at a single heat. The same process has been in use for years in this country in the manufacture of weldless iron tires.—*Scientific American*.

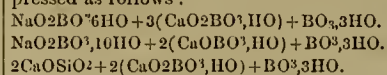
PATENT ROLLING MILL.—Mr. Charles White, of Monmouthshire, has invented a rolling mill in which, by means of several pairs of rolls, some of which are vertical and others horizontal, the bloom is compressed alternately flatwise and edgewise, as many times as may be necessary to reduce it to the required size. By this arrangement, manual labor is entirely done away with, excepting that of one man to throw the pile into the first pair, and another to take the bar away. The iron is allowed very little time to cool; an important advantage.

TWISTED WROUGHT-IRON BARS.—The *London Mechanics' Magazine* refers to the recent examinations of samples of twisted wrought-iron bars which combine the four great essentials—strength, lightness, elegance, and cheapness. The bars are drawn from the rolls in the cruciform section, and twisted hot, so that the fiber of the iron is not injured. A regular twist of pleasing appearance is produced, two bars in some patterns being twisted together. The various sizes and patterns are well adapted for the purposes of ornamental ironwork in general. Although very light, these bars possess considerable strength.

Scientific Miscellany.

NEW MINERALS.—In the clefts of some of the silurian sandstones of Bohemia, two new minerals have recently been discovered and described. Both are hydrous phosphates of alumina, closely related to wavellite. One of these minerals has been called Barrondite, in compliment to a Bohemian geologist; the other will be known as Sphaerite, in allusion to the modular forms in which it occurs.

In the deposits of sulphate of lime, largely worked in Hartz county, Nova Scotia, three new borates have recently been discovered by Dr. How. They have been described under the names of cryptomorphite, natroborealcite, and silicoborealcite. Their formulas are respectively expressed as follows:



The name of Rewdanskite has been proposed for a new nickel ore, from Rewdansk in the Urals. It occurs as a greenish earthy mineral, consisting of hydrous silicate of nickel, in which much of the nickel oxide is replaced by magnesia and protoxide of iron.

PURIFICATION OF GAS.—A new gas purifying medium has been devised, bearing the name of "Prepared Iron Ore," which is said to possess important advantages over any other preparation for the same purpose. The article is said to be a preparation of oxide of iron, with some other substance which is capable of regaining its purifying qualities over and over again for a long period of time, with no appreciable loss except that incurred in handling. The *Gas-Light Journal* is told that the New York Gas-Light Co. have used it for six months with great satisfaction. It is said to effect a great saving of labor as well as cost of material.

TRANSPARENT GELATINE PRINTS.—The *Journal of the Franklin Institute* for May, describes some transparencies for the magic lantern prepared by Mr. Onderbridge by simply printing the cut directly upon sheets of gelatine. The finest lithographs may thus be easily taken; the most delicate lines showing perfectly. The only precaution necessary is to print with a dry stone, gelatine being very soluble in water. It may be made insoluble by mixing with it, while fluid, a small quantity of bichromate of potash and then exposing to light; this, however, slightly tinges it. This invention will find an extensive use in connection with the magic lantern.

A PROCESS FOR OBTAINING PURE IRON.—Troost gives a method of obtaining very pure soft iron. He melts cast iron in a lime crucible by means of the oxy-hydrogen flame, directed downwards. When the metal is fused he increases the proportion of oxygen, and thus burns away the silicon, carbon, and sulphur. The slag formed is absorbed by the crucible. When the operation is finished, a button of very pure metal remains at the bottom of the crucible. This process would be extremely useful on a large scale if oxygen could be procured at a cheap rate, but pending the discovery of means whereby oxygen can be prepared for industrial purposes, pure iron obtained in this way must remain a metallurgical curiosity.

THE COMING ECLIPSE.—Both English and French astronomers are making preparations for observing at the East an eclipse of the sun on the 18th of August next, which will be total for the space of 6' 46" along a line passing through Southern New-Guinea, Hindostan, the Bay of Bengal, the Malayan Peninsula, and the Gulf of Siam. Leverrier recommends that the French ships be placed on the eastern side of the Malayan peninsula for the accommodation of the observers. Some interesting questions regarding the "corona" and "red flames," it is hoped, will then be satisfactorily settled by means of the spectroscope.

Nitrogen and hydrogen, when absorbed by charcoal, diffuse into the atmosphere of another gas with such force as to depress the mercury three-quarters of an inch. Water expels mercury from the pores of charcoal by an instantaneous action.

HOW SPIDERS BEGIN THEIR WEDS.—Early in the spring of 1866, while arrangements were making for photographing a live male of the *Nephila plumipes* (the so-called "Silk Spider of South Carolina") the spider, after having several times traversed the circle of wire on which it was, suddenly stopped, took a firm position: the top of the frame and lifted; he abdomen, pointing it toward a large skylight which occupied the middle of the ceiling a slender, shining thread was seen to shoot forth from the spinnerets which, at the end of the abdomen; it seemed to have a rounded extremity, which advanced through the air rather quickly for a few inches, but afterward more slowly and steadily, and with an upward tendency, but always in the direction of the skylight. When it had reached the length of five or six feet, I allowed it to become attached to my coat; the issue ceased at once, and the spider, having attached the end of the line, turned about and began to pull upon it. I now broke it off near the wire, and, believing that there was a current of air toward the skylight, I blew gently upon the spider from various directions, and found that she always pointed her abdomen in the direction in which I blew, and that the thread was emitted in the same direction. So that while it seemed to have the power of projecting a thread for a short distance, yet it always availed itself of the prevailing current of air.

This single instance by no means proves that all spiders do or can employ this method of bridging over spaces, and it may be that on ordinary occasions they do, as every one has seen them, descend to the ground, emitting the thread as they advance, and pulling in the slack before attaching it to the desired point. But the former method enables them to cross water and to pass from tree to tree; while the well-known buoyancy of the silk permits them (or at least the smaller species) to sail along our water, hanging at the lower end of a line whose upper end is invisible.—*American Naturalist*.

CHANGE OF TONE WITH CHANGE OF DISTANCE.—The tone or pitch of any sound depends upon the rapidity of the sonorous vibrations, the higher the pitch the more rapid the vibrations. Those produced by the locomotive whistle probably range from 100 to 500 per second, in different locomotives. Let us suppose the vibrations are 200 per second. Then, since sound travels in air about 1,100 feet per second, each wave will be about five and a-half feet long. If the locomotive is approaching at the rate of twenty miles per hour—which is about thirty feet per second—we shall hear five more vibrations per second than actually occur; during that time, the locomotive having approached by a distance somewhat greater than the length of five of the sonorous waves. On the other hand, when the locomotive is receding, we hear five vibrations less instead of five more, making a difference of ten vibrations in a second, or one-twentieth part of the whole number generated by the whistle; a difference—amounting to nearly a semi-tone—amply sufficient to cause a very perceptible change of pitch.—*Cor. Scientific American*.

A MODE OF STOPPING POROUS CYLINDERS FOR HYDRAULIC PRESSES.—Kohn, an engineer in Berlin, gives the following as a method of effectually stopping up a porous cylinder, cast for a hydraulic press. The cylinder is to be heated over a charcoal fire to about 170° Fah. It is then to be filled up with resin and suspended by a crane over the fire until the liquefied resin is seen sweating through on the outside. The excess of resin is then poured out and the cylinder allowed to cool, when the pores will be found completely stopped, and no water can possibly pass.

CHLORIDE OF MAGNESIUM.—It has been announced that chloride of magnesium can unite and associate with magnesia, forming an oxychloride of magnesium, perfectly insoluble, and possessing the property of taking all variety of forms in a degree incomparably greater than plaster of paris. It is also capable of taking a high polish of a great number of substances with which it may be mixed, in the proportion of a fifteenth to a twentieth of their weight. The same is sold for meerschaum pipes.

A NEW ACID.—Dr. Hoffman, says the *Mechanics' Magazine*, has announced the discovery of a new acid which bears the same relation to naphthalene that acetic acid bears to marsh-gas. Recently the same eminent chemist communicated to the Royal Society of London the discovery of "the mustard oil of the ethyl series."

MANUAL OF VETERINARY SPECIFIC HOMOEOPATHY. By A. F. Cooper, San Francisco.

This is a pocket-size edition, partially intended to accompany cases of medicines. It treats of horses, cattle, sheep, hogs, and dogs, and their specific homoeopathic treatment; referring to ventilation, precautions to be observed in buying a horse, etc.; an essay on the stallion; and the laws of transmission and progeny explained. So far as examined, we judge the work contains many useful hints and explanations of importance to every owner of domestic stock. People generally are too ignorant of the nature of live stock, and the proper care necessary to relieve them from the numerous attacks of disease to which they are subject, and which in most cases might be readily repulsed, avoiding fatal results. Mr. Cooper is a practical veterinary surgeon, permanently located at 815 Market street, San Francisco.

SIGNIFICANT.—Our agricultural implement dealers, in all parts of the State, unite in the testimony that the sale of harvesting and other agricultural machinery has been heavier this season than ever before known in the history of the State. It is reported by the interior press that some single townships are employing from 50 to 100 harvesters, with a proportionate number of headers, reapers and mowers. This great demand for agricultural implements has also set our inventors to work improving the various machines sent hither from the east, and devising new ones. Several such inventions, of a most promising character, have been illustrated from time to time in our columns. It appears to be pretty generally conceded that the most valuable steam plow yet invented anywhere, is the California plow of Coffin & Standish. We have also seen the drawings and model of a new harvester, which consists of a combination of the reaper and thresher, by which the operation of reaping, threshing and sacking is all performed by a single machine, at an expense of power and labor far less than can be reached by any other machines in use. The caveat papers for this invention went to Washington by the last steamer. We shall soon be allowed to speak of it more fully.

SUPPLEMENTAL AWARD.—A meeting of the Board of Agriculture, held at Sacramento on Wednesday last, among other business, decided to award two additional gold medals, in accordance with the recommendation of the Committee on Gold Medals appointed at the last Fair. One of these medals was awarded to the San Francisco Glass Works (at foot of Third street) for the best exhibition of glassware, at the last State Fair. The other medal was awarded to Isador Landsberger, for his exhibition of sparkling wines. Preliminary arrangements were also made towards holding the next annual State Fair.

PUBLIC DOCUMENTS.—We are under obligations to Hon. D. R. Ashley, for the volume of "Reports upon the Mineral Resources of the United States, by Special Commissioners J. Ross Browne and James W. Taylor." The volume comprises 360 closely printed pages; also for "Annual Report of the Commissioner of Patents for the year 1865." We are under obligations to Hon. John Conness, for the Congressional Globe and Appendix for the first session of the fortieth Congress.

SANTA CLARA COLLEGE.—The Commencement exercises of Santa Clara College took place on Thursday and Friday. This college was founded in 1851, and has been in successful operation ever since. It now numbers nearly 200 students, including the preparatory department. The faculty consists of twenty-one in number—Rev. A. Varsi, President.

There are said to be 20,000 mechanics, who have been regularly bred to their calling in Chicago.

New Patents Issued to Pacific Coast Inventors.

Specially reported by the U. S. Patent Office, Washington, D. C., to DREW & CO., American and Foreign Patent Solicitors, and Publishers of the MINING AND SCIENTIFIC PRESS.

ISSUED FOR THE WEEK ENDING JUNE 2, 1868.

78,464.—IMPROVEMENT IN GANG PLOWS.—Don Carlos Matteson, Stockton, Cal.:

1. I claim the bars E, F, attached to the front ends of the beams A, B, with the perforated draught-bar G, attached thereto, substantially as and for the purpose specified.

2. The attaching of the caster-wheel J, to a single arbor, K, provided with a scraper, f, substantially as and for the purpose set forth.

78,597.—IMPROVED SHOE FOR SEPARATORS. Michael Laufenburge, of Two Rocks, Cal.:

I claim the combination of the screw I, with the two inclined sieves C and C', vibrating in alternation, substantially in the manner and for the purposes herein described.

ISSUED FOR THE WEEK ENDING JUNE 9, 1868.

78,669.—IMPROVED PLATE FOR ARTIFICIAL TEETH.—D. S. Hutchinson, San Francisco, Cal.:

I claim a flexible cavity plate having in part or in whole the palatine portion of the plate made of flexible material D, in connection with a compound cavity or series of cavities, united or otherwise with a cavity on the center or palatine portion of the plate and upon the internal or external (or both) borders of the alveolar ridge, substantially as and for the purpose specified.

78,703.—IMPROVED SPURS.—Sam. Wehrly, San Francisco, Cal., assignor to self and E. V. Sutter, of same place. (Antedated May 4th, 1868.)

I claim a spur having the dog o, the rack m, and arm d, together with the spring c, and slotted plate b, the whole constructed and operating substantially as and for the purpose described.

78,718.—IMPROVEMENT IN PICK HANDLES. Wm. Blay, Helena, Montana. (Antedated June 4th, 1868.)

I claim the metallic strap B, constructed and applied to the pick handle as shown and adapted to be pressed through the eye of the pick and secured therein by means of a key m, as described and represented.

78,723.—IMPROVED TRACTION RAILWAY BRAKES.—R. d'Heureuse, San Francisco, Cal.:

I claim the double flanged or grooved wheels for brakes on railway cars applied and operated substantially as herein described and represented.

78,724.—IMPROVEMENT IN HOES.—Josiah Dodge, Grass Valley, Cal.:

I claim, in combination with a hoe, the pick B, and the forked shank D, substantially as and for the purposes herein shown and described.

78,733.—IMPROVED APPARATUS FOR TURNING WRIST PINS, CRANK PINS, ETC.—Theodore A. Goff, San Francisco, Cal.:

I claim the arrangement of the several parts of the machine as herein recited, whereby it may be used to turn off a wrist pin or a crank-pin in place as set forth.

78,774.—IMPROVEMENT IN HORSE HOES.—Elisha W. Walton, Stockton, Cal., assignor to self and Wm. H. Derrick, of same place:

1. I claim the regulating brace m, constructed substantially as and for the purpose above shown.

2. The standard E E, of a horse hoe, constructed substantially as above described.

3. The reversible hoe point D, with its slot or mortise x, constructed and operated substantially as above shown.

4. The reversible shares A, and also their two sharp cutting edges, constructed and operated substantially as above shown.

5. The mold board B, (in combination) with the share A, substantially as above shown.

6. The wedge L, with its screw and nut, constructed and used substantially as and for the purpose above described.

7. A horse hoe, with or without the mold-board B, constructed and operating substantially as above described.

78,825.—IMPROVED FORGING APPARATUS.—Nelson Peterson and Geo. W. Jones, Antioch, Cal.:

1. The bar H, with its slotted lever N, screw P, and spring I, in combination with the link J, and handle B, substantially as described.

2. We claim the bearings E, having the recesses d, d, for supporting the axle D, so as to allow the hammer to be used on any part of the anvil, substantially as described.

78,831.—IMPROVED PROCESS OF TREATING GOLD AND SILVER ORES.—Louis Edward Rivot, Paris, France, assignor to Jacques Gaillardon, San Francisco, Cal.:

1. The roasting by means of superheated steam of auriferous and argentiferous ores when previously contained or mixed with oxide of iron substantially as set forth.

2. The roasting of auriferous and argentiferous ores by mixing therewith oxide of iron combined with iron or roasted pyrites, and then submitting the whole to the action of superheated steam substantially as set forth.

Notices of Recent Patents.

78,835.—IMPROVEMENT IN BOOTS AND SHOES. Nicholas Lumsden, San Francisco, Cal.:

I claim the regulating guide, consisting of the sliding rod L, and its adjustable nut M, together with the screw plate I, and the wire holding clamp, the whole constructed and operating substantially as and for the purpose described.

2. I claim the adjustable last standard, constructed and operating substantially as and for the purpose described.

3. I claim the device consisting of the spring W, rod V, cylinder g, and barrel h, for obtaining a perpendicular motion of the last, and a pressure against the screw plate, substantially as and for the purpose described.

The design of this invention is to provide an improved machine for the manufacture of screwed boots and shoes on unplated lasts; the object being first, to construct a gauge by which the length of the same and the depth to which it penetrates, shall be regulated, so that it will not be necessary to plate the last with metal to stop the screw; second, to construct a clamp so made as to secure the wire firmly while the screw is being cut, and yet be easily disengaged when necessary. It also consists in a movable support for a last, which can be operated by the foot, to withdraw the last from the machine, while by means of a slide and adjustable turning joints, the last is easily moved and turned into any desired position for receiving the screws.

This apparatus is sold for from \$35 to \$50. Heretofore the only machines in use for doing this work have been a French machine costing about \$400, and an American invention costing \$125. These prices have put such machines out of the reach of most individual shoemakers, while the apparatus of Mr. Lumsden is brought within the reach of every one. It is simple and strong, and a person can learn to use it in half an hour's practice.

THE PACIFIC CHEMICAL WORKS.—We acknowledge the reception of a very finely executed photographic view of the Pacific Chemical Works, on Sixteenth street, near the crossing of Polson. We have already made several extended notices of this establishment. The proprietors, Messrs. Falkenau & Hanks, have recently made extensive additions to their works, and it is their intention to continue to supply additional facilities, as the demand for chemicals on this coast increases.

NEW CALIFORNIA MONTHLY.—Roman & Co., the well known publishers, will issue the first number of a new magazine on the 1st of July. It is to be called "The Overland Monthly." It is the design of the publishers to make it a first class literary periodical. It will be, as far as may be, local in character; but pertaining to the entire Pacific Coast, and not especially to California. The enterprise is an important one, full of promise, and one which we trust will prove a pecuniary success to its enterprising projectors.

THE GALAXY, for June, has reached us. Its contents are rich and varied. The department of literature and art contains contributions from some of the first writers in the country. Terms \$4 per year; Sheldon & Co. publishers, N. Y. W. E. Loomis, agent, San Francisco.

MORE CONCENTRATORS.—Three more of Hendy's Concentrators have been shipped, the past week, for Grass Valley—two for the North Star and one for the Empire mill. Each of these mills are now running ten of these concentrators.

SORGHUM SUGAR IN SAN FRANCISCO.—A company was some time since organized in this city for the manufacture of sorghum sugar. An agent is now in the East for the purpose of procuring the best machinery and to thoroughly acquaint himself with the latest improvements in this manufacture. The machinery will be here by the last of August, and will be put in operation in season for working up the incoming crop. The company has a field of cane of 150 acres, now growing at Alviso, from the product of which they expect to manufacture 250,000 pounds of sugar, besides the resulting syrup. They expect to be able to afford this product at a much less price than the cane sugar syrup is now selling for.

The Sacramento Beet Sugar Company is also making progress toward active operations. They also have an agent in Europe, acquiring the best attainable practical knowledge of the business, mode of manufacture, character of machinery, seed, etc. The company is determined to go slow and sure; but they are nevertheless fully determined to go into active operation at an early day. We are rejoiced to notice these evidences of progress in our manufacturing and productive industries.

SAWMILLS ON THE LINE OF THE RAILROAD.

We are informed that five of Hendy's gang sawmills have been sent out from the Union Foundry during the past six weeks, to be put up along the line of the Central Pacific Railroad. One or two of these mills are each capable of sawing 80,000 feet of lumber in twenty-four hours. They are all to be employed by the railroad company in getting out ties and other timber for the road, an immense amount of which will be needed for constructing the track across the timberless region of the Great Basin.

AGRICULTURAL COLLEGE LANDS.—A bill has passed the House of Representatives providing that not more than three sections shall be located in any one township, with agricultural scrip. This will put an effectual stop to the use of such scrip to further the interest of speculators. It would be well if a similar rule should be applied in all locations of land. It were even better that the sale of railroad reservations were kept in the hands of Government, and the proceeds only handed over to the railroad companies. Large landed monopolies always retard the growth of a country.

HAYES' PATENT FIRE LADDER.—The new patent fire ladder, to which we have already several times referred, was again tested on Thursday evening last, opposite Wells, Fargo & Co's. A large number of spectators were present to witness the mode of its operation. It was found to work in all respects most satisfactory. This ladder is the invention of Mr. Hayes, Superintendent of engines for the fire department of this city.

ON FILE.—We have on file electrotype plates for the following illustrations, which will appear soon: American Watch Company's establishment, Waltham, Mass.; Markland's Saw Gummer and Sharpener; Christoffel & Booth's Elliptic Scraper and Tube Cleaner for Boilers; Hill's Elastic Ventilating Inner Soles for Boots and Shoes, and Lowe's Portable Printing Press.

NEW INCORPORATIONS.—Articles of incorporation have been recently filed in the County Clerk's office in this city as follows:

ORIENTAL G. & S. M. Co.—June 23d. Capital stock, \$3,600,000; 1,800 shares, \$200 each. Trustees: Jas. W. Moyle, S. C. Burke and Mathew Rudsdale.

METROPOLITAN M. Co.—June 23d. Capital stock, \$600,000; 6,000 shares, \$100 each. Trustees: A. P. Stanford, Charles Hosmer, M. L. McDonald and N. W. Chittenden.

ELECTION OF OFFICERS.—GLOBE G. & S. M. Co.—Trustees, J. H. Winchester, J. S. Powers, V. B. Post, W. H. Manning and S. H. Roberts; President, J. Winchester; Secretary and Treasurer, V. B. Post.

Weekly Stock Circular.

By Associated Brokers of the S. F. Stock and Exchange Board.

SAN FRANCISCO, SATURDAY MORNING,
JUNE 27, 1906.

CITY STOCKS.

The market for miscellaneous stocks continues quiescent. We note sales of Pacific Insurance Company stock at \$120, and Occidental Insurance at \$78. North Beach and Mission Railroad sold at \$65 50; California Steam Navigation Company stock at 69 1/2 per cent.; Spring Valley Water Company was in the market at \$67 1/2 per share.

The receipts of the local insurance companies during the month of May, and previously this year, according to the returns made to the Internal Revenue Department, have been as follows:

	May.	Previously this year.	Total.
Pacific.....	\$60,911	\$253,119	\$314,030
Union.....	31,183	140,513	171,696
National.....	49,883	131,370	181,253
Fireman's Fund.....	18,808	71,866	90,674
Builders.....	21,547	73,134	94,681
California.....	8,369	48,482	56,851
Merchants' Mutual Marine.....	10,620	68,004	78,624
Occidental.....	6,840	23,331	30,171
Home Mutual.....	12,719	33,374	46,093
San Francisco.....	3,325	18,891	22,216
Peoples.....	6,531	25,200	31,731

Totals.....\$222,983 \$914,001 \$1,146,984

The returns were made upon a legal tender basis, the rate—72 cents for January, 71 cents for February, 72 cents for March, 72 cents for April and 72 cents for May—being fixed every month by the Assessor of the district.

The above statement shows a decrease of \$7,078 as against the receipts in April. The receipts of the several companies in May, as compared with April, show the following difference:

	Income.	Decrease.
Pacific.....	\$24,890	\$2,500
Union.....	14,186	1,432
National.....	18,944	1,361
Fireman's Fund.....	3,713	611
Builders.....	4,423	1,376
California.....	1,376	47
Merchants' Mutual Marine.....	1,376	47
Occidental.....	1,376	47
Home Mutual.....	1,376	47
San Francisco.....	1,376	47
Peoples.....	1,376	47

The receipts of the city railroads for the month of May and previously this year, have been as follows:

	May.	Previously this year.	Total.
Omnibus.....	\$26,729	\$93,336	\$120,065
North Beach and Mission.....	12,196	82,758	94,954
Central.....	15,044	51,212	66,256
Front Street, Mission and Ocean.....	9,022	30,734	39,756
Market Street.....	10,390	28,641	39,031
Potrero and Bay View.....	1,840	5,940	7,780

Totals.....\$86,201 \$292,622 \$378,823

Showing an aggregate increase of \$6,413 in May over the receipts of April. The receipts of May as against April show the following difference:

	Income.	Decrease.
Omnibus.....	\$1,432	1,432
North Beach and Mission.....	1,361	1,361
Central.....	611	611
Front Street, Mission and Ocean.....	1,376	1,376
Market Street.....	1,376	1,376
Potrero and Bay View.....	47	47

During the month of May the receipts of the San Francisco and San Jose Railroad amounted to \$30,823; San Francisco and Oakland Railroad, \$23,227, and the Mission Bridge Railroad, \$1,111.

Mining Share Market.

During the past week, the mining share market continued in an apathetic condition, showing a considerably decreased volume of transactions. We may remark that the season of recreation, now fully at hand, contributes largely to the general dullness of the market. However, our information from the various mines on the Comstock lode the present season, as compared with the same time last year, shows an increased aggregate yield, though, as a general thing, the developments in the lower levels have not yet proven very satisfactory. Continued vigorous prosecution of work will, we believe, bring a bountiful reward, and then we may look for a strong market. The market shows increased activity at the close.

From the Owyhee region, we learn that one firm at Silver City, during the month of May, assayed bullion amounting to \$229,558, and that the yield of the "camp," for the same time, as returned to the Revenue Assessor, amounted to \$378,688. The *Avalanche* says that next month the principal mines and mills will be in operation, and that a year hence the bullion product of the Owyhee mines will not be far short of a \$1,000,000 per month.

SAVAGE—has been less active than last week, opening at \$154 50, improving to \$160, then selling at \$155, and closing at \$156. The ore product during the past three weeks has been as follows:

Week ending May 6—1,768 tons, valued at.....	\$47 24 per ton.
Week ending May 13—1,730 tons,.....	49 90
Week ending May 20—1,692 tons,.....	44 29

During the week under review the south mine, on the fourth station, yielded 1,063 tons against 1,768 tons the previous week, and it is stated that this portion of the mine is opening out exceedingly well. On the track floor the breast is now thirty feet wide, and several floors above it reaches a width of sixty feet—producing ore very rapidly. The quality of ore is not quite so good as it was last week, and this, with the lessened product of first-class ore, reduces the general average for this week. On the fifth station, north mine, the main drift is in a mixture of clay and porphyry. The cross-cuts, both east and west, show a section of the vein for 135 feet. To the west it is chiefly quartz, with some

spots of ore; and the east is principally porphyry, and begins to resemble the Potosi formation. In the south mine, same level, the drift is in fine ore, and is now more than sixty feet from the line. The breast they are opening around the old winz is reported to look well. They expected to commence the sixth station the present week. The bullion returns for June account, so far, aggregate about \$240,000.

IMPERIAL—met with lessened inquiry at declining rates, falling from \$160 to \$120, recovering to \$140, and closing at \$133 50. On the 23d inst., they had penetrated the vein on the lower level a distance of thirty-two feet, and it is calculated that they will have to run sixty feet more to get under the east end of the drift run from the 700 level of the old works, at which point the vein carried some pay ore. The usual amount of ore continues to be extracted from the upper levels. Bullion sent forward on the 25th inst., \$12,655, making \$35,617 for account of June.

CHOLLAR-POTOSI—was in light demand, selling at \$245@260, and closing at \$257 50. The ore extracted during the week ending June 19th, amounted to 830 tons against 652 the previous week; and 828 1/2 tons were sent to custom mills during the same time against 690 1/2 the previous week. The Blue Wing section is the only portion of the mine yielding ore at present, and it is believed that this supply will be kept up for some time yet. Prospecting in the "Belvidere country" is thought to look favorable. The drifts from the 1,000 and 1,100 levels running east, show hard rock in the face.

CROWN POINT—was quite active under a decline, receding from \$104 to \$94 50, and closing yesterday at \$95. On the 20th inst., the shaft was ninety-five feet in depth from the 800 station, and running in soft rock. The south drift was 165 feet from the line, and reported to look poorly. On the upper floors the breasts are said to be in from five to nine feet of \$40 ore. The drift running south, on the 800 level, has already carried a paying body of ore some fifty feet further than did similar drifts on any of the upper levels, which fact is thought to promise well for the future of the mine. The various floors working south between the 700 and 800 levels are reported to look very well. The bullion receipts to date for June aggregate nearly \$73,000.

KENTUCK—sold at \$400@377, then at \$382 50, and closed at \$385. The bullion returns for June, so far, reach \$41,136 58. GOLN HILL QUARTZ was in the market at \$82 50@86. The second shipment of bullion amounted to \$3,032 28, making \$5,950 44 to date for June.

HALE & NORCROSS—sold to a considerable extent, declining from \$80 to \$65, improving to \$91, and at the close sold at \$87. In the lower level they penetrated the vein some twenty feet without obtaining encouraging results, and they are now placing a turn-table in order to drift upon the vein.

YELLOW JACKET—was dealt in at fluctuating rates, rising from \$1,100 to \$1,190, falling to \$1,085, rising to \$1,200, and at the close realizing \$1,210. The *Trepasser*, of the 20th, says: "The 730-foot drift presents an improved appearance. The shaft is being sunk slowly, a tank sufficing to keep the water clear. The pump is being put in place, and an immense spur-wheel substituted for driving the gearing."

ALPHA—opened at \$57 50, declined to \$46, rallied to \$52 50, and closed at \$52. We learn that prospecting will soon be commenced, the shaft having been repaired and the machinery put in running order. An assessment of \$5 per share was levied on this stock on the 23d inst.

SIERRA NEVADA—rose from \$25 to \$32, and then realized \$29@31 per share. It is said that all three of the pumps will be in working order by to-day. They struck quartz and clay in sinking to the 700 level; and, later, it is reported that a vein of ore has been reached at the bottom of the shaft. BULLION sold at \$23 @19. No encouraging results at date in drifts from 1,200 level.

The sales in the Board during the past week have been as follows: Regular sessions, \$1,192,302; open sessions, \$473,453—total, \$1,665,755.

COMMENCEMENT EXERCISES.—The commencement exercises of St. Ignatius College, on Market street in this city, took place yesterday and day before, too late for any extended notice in the present issue.

CHARCOALS differ extremely in absorbing power and in the capacity of uniting with oxygen; animal charcoal possessing the latter property in a greater degree than wood charcoal.

It is rather a humiliating fact that all the mechanical power exerted by a man during his life is more than covered by the power stored up in one small cart-load of coal.

CONTINENTAL Life Insurance Company, 302 Montgomery street, corner of Pine.

PACIFIC QUARTZ ROOFING CO.—We have already made several allusions to the manufacture at Folsom, of a new character of roofing material, and designated "quartz roofing." It is prepared from finely pulverized quartz, saturated with some bituminous liquid, which renders it firmly adhesive and exceedingly pliable. It is prepared and put on cold; hardening in about forty-eight hours. It can also be used as a paint for covering either metal or wood. It may be made of any shade of color and adheres as firmly to tin or any smooth metal, as any paint we have ever seen. It is water-proof and quite as fire-proof as any of the asphaltum preparations now used in this city. The patentees claim that they can cover a roof with this material one-third cheaper than the same roof can be covered with any other material in use. The proprietors are Messrs. Meredith & Garrigan, who have filed a caveat for the invention. They are about establishing themselves in this city, where their place of business will soon be announced.

SILK BUSINESS.—A week or two since we referred to the large preparations made by Mr. Hoag, of Sacramento, for the production of cocoons the present season. It appears that Mr. Hoag is not the only one that is going largely into this business. The *Los Angeles Republican* of June 20th, says Mr. D. F. Hall, of San Gabriel Mission is now feeding 180,000 worms, which at a low estimate will produce 900 pounds of cocoons, worth at least \$2,250. Mr. H. will next year raise trees sufficient to afford food for 1,000,000 worms, which will produce 5,000 pounds of cocoons, which will be worth over \$12,000.

THE DUROMETER is the name of an instrument recently introduced into use for testing the hardness of metals. It consists of a properly constructed drill, operated with a given uniform pressure, and continued for a certain number of turns. The hardness of the metal is determined by the depth to which the drill will penetrate with a given number of turns. It is largely employed in France for testing the hardness of railroad iron. Most of the French contracts for railroad iron are now conditioned upon a test by this apparatus.

MR. THOMAS HILL, member of the S. F. Stock and Exchange Board, died in this city on Wednesday last. Mr. Hill, formerly a prominent merchant in Sacramento, has been a well-known broker here for several years. He leaves a large circle of endeared friends and relatives residing in this city and his native town, Northampton, Mass.

UNIVERSITY COLLEGE.—The contract for the erection of the College on University Mound, just out of the city, on the San Bruno road, was let to Mr. Thos. Moffat, on the 18th inst. The building will be two and one-half stories in height; dimensions, ninety feet by sixty feet, with projections; style, French Gothic. The building will be entirely completed in November next.

HOSE COUPLING.—Mr. James H. Fox, agent for Bush & Hanson's new hose coupling, has shown us a sample of the same. The coupling exhibited is for a 2 1/2-inch fire hose. It is constructed so as to lock together almost instantly by a cam motion. The device is plain and simple, not likely to breakage or misapplication. One piece couples with any other, without regard to rights or lefts.

PATRONIZE THE LADIES.—Any one wishing to procure anything in the way of furnishing goods, will be well fitted at the Women's Cooperative Union store, No. 39 second street, between Market and Mission. Don't be bashful.

PRESERVE YOUR SIGHT.—Adopt spectacles suited to your eyes. C. Muller, optician, 205 Montgomery street, stands at the head of his profession. Try him.

PATENT OFFICE REPORTS, from 1843 to 1847, Mechanical, are wanted for duplicate copies at this office. Parties having them for sale will please state price, and address DEWEY & CO., Mining and Scientific Press office, San Francisco.

As if by magic comes repose,
Forget thy pain, forget thy woes.

This harmless Remedy stops all pain instantly, and leaves no stain. The tongue cannot mention any physical pain that this faint will not remove in five minutes. Whether a trifling turn, a grinding Gout, or a simple Mosquito bite, the result proves an entire relief from distress at any spot or place where applied. It is perfectly adapted not only for all pains, but also permanently cures the worst Ulcers, Piles, Cancers, or breaking out on any part of the body, and all internal complaints, by an outward application to the parts affected.

MOORE'S PAIN EXPELLER, a standard remedy for Catarrh, Cold in the Head, Inflamed Eyes, etc., sold by all druggists.
G. H. MOORE, Inventor and Sole Proprietor, 652 Market street, San Francisco, Cal. 21v16-3m

SAVE YOUR TEETH.—Mrs. Jessup & Beers, over Tucker's jewelry store, are now making a specialty of filling the fangs of dead Teeth, and building up broken crowns with pure gold—thus restoring them to their original usefulness and beauty. They are also using Nitrous Oxide for the painless extraction of Teeth, when so desired—the only absolutely safe anesthetic ever discovered. In breathing it, it acts as a gentle stimulant, without undue excitement—the sensation produced being truly delightful, the effect upon the lungs healthful, and in its results positively free from all danger. Prepared and administered daily at the Dental Rooms of Messrs. JESSUP & BEERS, corner Montgomery and Sutter streets, San Francisco. 16v16-1f

CO-OPERATIVE UNION STORE.—This is becoming one of the most useful institutions in the city, and the Mechanic and Laboring Man fully appreciate it. They are now enabled to buy their Groceries and Provisions 20 per cent. cheaper than ever before, and the very best articles in the market. The store is located at 115 Sutter street, Lick House Block, San Francisco. 6v16-1m

American, Waltham, Watches—The Best, The Cheapest.

Recommended by Railway Engineers, Conductors and Expressmen, and the most exacting class of watch-wearers, as superior to all others for strength, steadiness, accuracy and durability.

Unscrupulous importers occasionally place a worthless Swiss imitation in the market. To avoid imposition, the purchaser should invariably demand a certificate of genuineness.

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BRASS AND BELL FOUNDER

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Manufacturer of Brass, Zinc, and Anti-Friction or Babbot Metal Castings;
CHURCH AND STEAMBOAT BELLS,

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FIRE ENGINES, FORCE AND LIFT PUMPS,

Steam, Liqueur, Soda Oil, Water and Flange Cocks, and Valves of all descriptions, made and repaired. Hose and all other Joints, Spelter, Solder, and Copper Rivets, &c. Gauge Cocks, Cylinder Cocks, Oil Globes, Steam Whistles,

HYDRAULIC PIPES AND NOZZELS

For Mining purposes, Iron Steam Pipe furnished with Fittings, &c. Coupling Joints of all sizes. Particular attention paid to Distillery Work. Manufacturer of "Garratt's Patent Improved Journal Metal."

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THE BOSTON FUSE COMPANY.

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Agents for the Company,
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The Giant Powder Company

Is now prepared to fill all orders for

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Packed in boxes of 5, 10, 25, and 50 lbs., either loose or in Cartridges of 1/2, 3/4, 1, and 1 1/2 inches diameter. Each package contains one size Cartridges.

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I PROMISE TO CURE RHEUMATISM, NEURALGIA, Gout in the Feet or Ankles, Dyspepsia, Piles, Malaria, Bone Pain, and all kinds of Sores, in men or animals, and no matter how long standing. Also, Heart Disease, Sore Eyes, Sore Throat, Scrofula, Salt Rheum, and all Skin Diseases. Secret Diseases of all kinds cured. DR. JAMES BROWN, No. 34 Broadway, between Sansome and Montgomery streets, San Francisco.

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Mining Summary.

The following information is gleaned mostly from journals published in the interior, in close proximity to the mines mentioned.

CALIFORNIA.

Alpine County.

Markleeville *Miner*, June 13th: The ledge in the Gould and Curry claim of the Pittsburg Co. is improving.

The I X L mine is now turning out more ore than ever before. The large body, or increase of size of vein, continues, and with an increase of force, matters about the mine begin to assume a lively appearance.

This week a large body of water has been struck in the Lateral tunnel of the M. C. M. Co., and the quartz is looking better than ever before. As depth is gained, the character of the ore vein gradually changes for the better.

We examined a sample of a few pounds of the first-class ore now being taken from the Morning Star, which the Supt., Mr. Seaman, sent to the office in San Francisco this week, and must say it beats even the black ore of the old pocket found in the upper level. It is the purple or violet ore which Mr. Graff found to be the most valuable of any class in the mine, and Mr. S. assures us there are large quantities of it now coming out.

The rock in the Mountain tunnel remains unchanged, though two small streaks of quartz, a few quartz pockets and a little accession of water struck a few days since, gave promise of a change.

Chronicle, June 13th: Supt. Barnes, of the Billy Rogers claim, has arrived and will soon commence work on the claim.

Yesterday we were shown a beautiful specimen of crystallized quartz from the Mountain tunnel, which has this week run through several strata of this character of quartz.

As soon as the Big Tree road is open the machinery for a quartz mill to be erected on the Rosalinda claim, a few miles from this town, in the Mokelumne District, will be brought over.

Calaveras County.

Chronicle, June 20th: Mr. Shaw, Chili Gulch, is doing a large business in the way of moving dirt. He uses 150 inches of water with a large fall, and is moving a bank from 60 to 90 feet high, by the acre.

Quartz prospecting is being carried on with much energy in this vicinity, and we are glad to say, with flattering indications. There is but little doubt but what this is the best quartz locality in the Southern mines. Staples & Co. have drifted from their shaft through the wall rock, and opened a large lead, from which they are taking excellent rock.

The Obili Gulch correspondent writes: There are now being worked in this vicinity several good gravel claims; the Coffee Mill claim and the claim of Messrs. Paul & Co. are the most promising. The former is situated on the side of the Golden Gate ridge, and is worked by means of an incline tunnel about 400 feet in length. The machinery and pumps are worked by a small but powerful steam engine, which, from its diminutive size, is called the Coffee Mill, and the claim goes by the same name. The claim of Messrs. Paul & Co. is worked by means of a tunnel, which has been driven through solid granite rock over 800 feet. It required the labor of six men, night and day, for nearly four years, to reach the gravel deposit where they are now working, and which pays handsomely. The hydraulic claim of Mr. Martin, at Red Hill, is also doing very well, although it is expensive to work. The gravel is intersected by horizontal layers of lava, very hard, and not easily cut or broken by the water. Mr. Martin has found it to his advantage to cut these strata of lava, by means of drifts, before working upon the bank with water. The ground being thus loosened, is easily caved and run off through the flumes.

The Camanche correspondent writes: Sand Hill and Crout Point are being worked to better advantage than ever before. Flagg, Jacobs & Co., have run a tunnel for several hundred feet, which opens to them a valuable claim, and fair prospects for a fortune. They have washed only sufficient to get a face on their works.

Messrs. Kennedy & Morrow have opened a claim at the lower point of Sand Hill. No great strike is expected from this mine.

Eldorado County.

San Andreas *Register*, June 20th: The El Dorado correspondent gives the following items: The mining prospects, wherever I have been, or have heard from, are flattering.

I heard of a new quartz discovery near Sheep Ranch, which was spoken of very

highly. The Whisky Slide quartz mine is not worked at present, but I understood that the company intended to commence operations before long. I also understand that the miners on Nigger Gulch and vicinity, have been taking out a large amount of gold dust, and are still doing well.

Humboldt County.

Yreka Times, June 13th: We understand that exceedingly rich diggings have lately been found on New River. In the progress of working some of the claims in that locality, a deposit of gravel has been struck which is said to be of extraordinary richness.

Inyo County.

An Independence correspondent writing to the Anurora (Nev.) *Union*, under date of May 31st, says: The miners in the Alabama placer mines have got thoroughly to work, and have made from \$10 to \$50 per day to the hand—or an average of about \$30—and if water was more plentiful in the district, more paying claims might be found in the same locality.

The arastra mill at Bend City is running steadily on rock that averages about \$40 per ton. The Silver Sprout Co. are at present engaged in building a large reverberatory furnace for the better reduction of their ore.

The mines at Fish Springs are still looking good, and very rich rock is being taken from the different ledges. Parties interested there are engaged in building a wagon road between their mines and mills.

New discoveries of rich ledges are being made daily in the Cerro Gordo mines, and considerable action is taking place in regard to the old discoveries in that district.

Klamath County.

Humboldt Times, May 30th: The mining prospects of Klamath County are unusually promising for the present year. At Orleans Bar, a company is in process of organization for the purpose of hiring the waters of Camp Creek on the Bar. The length of the canal and flume that will be required will be not far from eight miles, and all along the line of it is good paying ground.

At Happy Camp on the Upper Klamath, a large number of miners are at work, and the claims are all paying well—some largely. A company of San Francisco capitalists have brought water to the Camp, opening a large district of placer diggings that have heretofore laid idle, and but for water were worthless.

A good account is also given of the business and mining operations at Sawyer's Bar. The Black Bear quartz claim still continues to yield largely.

There is no doubt in the world but that Klamath County to-day presents as good a field for the industrious miner as any in California, and by far better than many of those to which thousands flock hundreds of miles away, and thousands could find locations within its limits that would pay.

Mariposa County.

Mail, June 19th: Placer mining in this county is often pronounced a "fizzle," "played out," but reports from various portions of the county convince us that much remains untouched, and that there are many rich and virgin fields only awaiting sturdy arms and persevering picks to disclose their hidden treasures. We are credibly informed that on King's Gulch, this side of the Fresno, there are claims now being profitably worked, and yielding a quality of gold, worth (as per assayer's return) \$19 per ounce. There are several other gulches in the immediate vicinity of the above, in which flattering prospects of coarse gold have been obtained, but owing to a scarcity of water they have not been thoroughly prospected. We are told that Mr. Hayden's claim has produced nuggets weighing \$15. Our informant states that the claim of Mr. Jeffries is also being very successfully worked.

Gazette, June 19th: From Hite's Cove we have the following: Hite & Co. are progressing finely with their new mill of 20 stamps. The foundation timbers are all laid, the mill house is up and roofed at this time; the batteries will all be framed ready to raise by the end of this week. The machinery is on the way from San Francisco and is expected every day at Mariposa. The company have an excellent foundation above the highest water mark. The mines continue to yield rich rock, and the team is constantly hauling it to the mill. Everything will be in running order by the first of August, provided there is no delay in materials. A spawler will be added to the mill for preparing the rock for the batteries.

Nevada County.

Transcript, June 20th: T. W. Sigourney yesterday bought three-eighths interest in the Italian mine. The controlling interest is now in the hands of J. J. Ott, who owns

one-half, and we understand they will soon put up machinery for the purpose of developing the mine. The old company got first rate prospects, but were compelled to suspend operations for want of capital.

Dr. D. C. Temple, of Omega, offers for sale what is known as the Temple & Creamer mining and ditch property, at Omega. It includes 70 gravel claims, 100 feet each; eleven-twelfths of the Diamond Creek ditch, one-half of the Missouri ditch, and three-fourths of the Edward's ditch. The three ditches run about 1,000 inches of water per day of 10 hours.

A new level has been opened on the Grizzly mine 125 feet deeper than heretofore reached, and below the surface water. The rock has greatly improved and will, it is estimated, pay \$30 to the ton. Mr. Clark will start up the mill and test the value of the ore fully by working, and if it proves as good as the prospecting indicates, 20 more stamps will be added to the mill before next winter.

Grass Valley *National*, June 19th: A few loads of rock has been taken from the Osborne Hill mine which looks splendid, and shows considerable free gold diffused uniformly throughout the mass. The yield is about \$90 to the ton, of that already taken out, and men are now engaged in sinking further. More workmen will be added in a few days, and it will not be long before the mine pays handsomely.

Gazette, June 23d: A blast of 240 kegs of powder was let off in the cement claims of Western, Holmes & Co. at Gopher Point, near Blue Tent, last Saturday afternoon. An immense amount of earth was dislodged by the shock, enough to keep the claim going all summer.

Grass Valley *Union*, June 19th: The custom mill belonging to Ben. Macauley in Boston Ravine, is constantly employed on custom work, and so good is its reputation among prospectors that its services are always engaged in advance. The Idaho will have another crushing put through this mill next week, the rock looking fully equal to that of their last crushing, which yielded \$35 per ton without counting the valuation of the sulphurets saved. These sulphurets, we are reliably informed, will yield at least \$500 per ton.

EXCELSIOR.—Virginia *Enterprise*, June 18th: The machinery for a second battery of five stamps has been purchased, and will shortly be put up in the Mohawk & Montreal mill. A large amount of excellent ore is already out, and when the mill starts up it will be kept running steadily. The backwardness of the season has greatly delayed all mining operations in Meadow Lake.

Gold Hill *News*, June 18th: Dr. Hiller, of Virginia, has just returned from a visit to Excelsior District, and reports matters in that elevated region flourishing as well as could be expected, considering the disadvantages under which the district labors at this stage of the season. The snow is melting off very fast, but is still from three to ten feet deep. The only mine actively working is the Mohawk & Montreal, which has been energetically operated all winter, developing a vast quantity of rich pay ore. The company have just got a new boiler from Sacramento, for their mill, and are adding five more stamps, making ten in all, besides which two new pans of the largest size and most approved pattern will be used. The mill will be in full operation by the middle of July, when rich returns may be expected, as the ore yielded under the stamps an average of over \$30 per ton last fall. Nothing was being done at the Enterprise mine.

Placer County.

Dutch Flat *Enquirer*, June 20th: Messrs. Kelsey & Co., owners of the Jehosephat, are now passing a large quantity of dirt through their sluices. A short time since they struck a mass of bluish cement and thoughts of the great ancient river channel immediately took possession of their minds, but as they piped the bank down, their blue gravel gradually passed away.

The Dutch Flat Co. cleaned up this week, after 14½ days' run, \$3,400.

The Messrs. Staples, of the Summersett claim have adopted an apparently novel method of working it. Finding it too hard at the bottom to be readily cut by their pipes, they have moved to the top of the bank and are now washing down, and the man who tends the sluices is about 200 feet below the one at the pipes.

Rablin & Co., owners of the Banner mine, intend to commence sinking a shaft on the mine some time the coming week, to endeavor to find the blue lead, which they are persuaded crosses from Thompson's Hill into Eastman's Hill, near that point. Last year they sunk a shaft to the depth of 27 feet and found plenty of cement of a bluish cast, in which gold was visible,

but abandoned the work for a time, but they intend to prospect it thoroughly this time. If they discover the lead at this point, enough ground will have been prospected to give employment, if properly worked, to thousands of men for years to come.

Auburn *Stars and Stripes*, June 18th: The Gold Run correspondent writes: Our miners are busily engaged in washing for gold and have good prospects of having water to wash all summer. The Home Ticket cleaned up last week and realized \$1,700. This was more than was expected, owing to difficulties under which they have labored. Moore, Taylor & Co., after a short run, cleaned up \$1,350.

We learn that the owners of the Mina Rica ("Rich Mine") ledge, on North Ravine, had 10 tons of rock from that ledge worked at Shipman's mill, last week, which yielded at the rate of \$53 per ton, after the rich specimens had been selected from the rock. The specimens taken from the 10 tons were worth \$500, making \$1,030 as the total yield. The ledge is about two feet thick, well defined with good walls, in slate, and the owners think they have a good thing. The mine is under the superintendence of Daniel Green. There is plenty more rock of the same quality in eight in the shaft.

Shasta County.

Courier, June 20th: A. McPhee informs us that the miners on the East Fork of Dog Creek are doing unusually well at present, and are demonstrating that the diggings are not near worked out.

Tuolumne County.

Sonora *Democrat*, June 20th: Lawrence Gooldee and Samuel Allen have struck a rich claim on the hill between Algerine Camp and Lattimer's. It is above the ditch and the dirt has to be taken below the ditch, to be washed. Notwithstanding this drawback they made \$500 week before last.

Yuba County.

Marysville *Appeal*, June 22d: Work was renewed on the Sherman quartz ledge on Monday by setting the pump in operation. We understand that it is the intention of its owners to prosecute the work with vigor this summer. The Sherman ledge has produced \$30 quartz, and there is more of the same sort left.

ARIZONA.

Prescott *Miner*, June 10th: Favorable reports continue to arrive from the newly discovered quartz mining district northeast of Wickenburg. Work is being done upon some of the ledges, and the ore taken out is said to be very rich in silver. The locality of the mines, as near as we can guess, is not over 10 miles southeast of Walnut Grove.

COLORADO.

Georgetown *Miner*, June 4th: An assay from the Nuckolle lode made by Messrs. Burlingame & Moor, from ore taken from Mr. Stille's tunnel, gave the large yield of \$905.28 per ton. This assay was from a portion of the vein never before tested.

From Empire we have encouraging news. A great amount of prospecting and general activity in mining matters exists there at present. Mr. Munson of the Knickerbocker mill, informs us that in a half cord of ore from the Conqueror lode, treated by Andrew Mason in the mill named, yielded \$600 in gold per cord. Mr. Haskins is repairing the old St. Clair mill, and will put in a half dozen arastras for the treatment of surface quartz from Silver mountain. At North Empire four arastras are running on quartz from the Conqueror lode, with good results. A party, whose name we did not learn, is putting up machinery in the Vore & Allen mill.

A splendid specimen of ore that beats almost anything of the ore kind that we have ever seen, is on exhibition at the office of Judge Yates. It is from the Cliff lode, on Brown mountain, which is being actively worked and looks first rate. A new pocket of fine mineral has been struck in the drift on the Munsell lode, and Tom is feeling very good over it. Active operations upon many of the hitherto idle mines in this district have been resumed during the present week.

Central City *Register*, June 4th: Mining matters are not as bright in Ward District as could be desired, but are looking up a little. Several mills are running.

Mr. Wightman, of the Eureka Foundry, informs us that within the last 30 days he has fitted up 50 stamps not before in use. This shows a decided increase in milling activity.

The Kip mill is running steadily on second quality rock from the Bohtail, which yields from seven to twelve ounces per cord.

John T. Hendrick has made arrangements to purchase all the first class ore of the Terrible lode. He is to pay \$500 per ton for it. He has also arranged with J. W. Watson, to reduce the ores of the Brown lode.

The Barrett Co. are rapidly lowering the water from the Winnebago mine, which has accumulated during the suspension of work and the putting up of their engine.

Denver News, June 10th: Mr. Lowe, of Fairplay, came in recently to tell us that the Ten-forty lode at Buckskin, discovered late last fall, is a second Comstock. At 15 feet from the surface they have nine feet of ore—sulphurets of silver.

Some of the old Black Hawk boys are going to mining in earnest in the Medicine Bow mountains, at a place discovered by them two years ago. Nick Spicer and others will have three sluices running within a few days.

The Ni-Wot shaft, on the Columbia lode, Ward district, is reported to have caved in, doing considerable damage.

Central City Herald, June 3d: Mining matters at Empire are improving. Many of the mines, owing to their location, have not been worked during the winter months, but will now yield a good return. The Conqueror is yielding some very rich surface quartz, which Andrew Munson is crushing in the Knickerhocker mill. The surface dirt from this lode paid well to sluice, and the headings yielded from \$250 to \$300 in a stamp mill.

Thomas Hodgkins and James White have made a valuable discovery, which is yielding plenty of ore. Andrew Munson is saving over \$100 per cord from it in the Knickerhocker mill. A good run was made on Silver Mountain iron recently; two and a half cords of ore yielded 33 ozs. of gold. It was mixed with surface quartz before crushing.

The May lode, Mountain House district, is turning out large quantities of rich silver ore. The crevice is about eight feet wide, and the average of the ore is about \$100, though selected specimens will assay as high as \$700. A shaft has been sunk 130 feet deep. A level is now being driven 60 feet from the surface. The ore will be treated at the California works.

The fine stamp mill of the New York G. M. Co., Black Hawk, is now being run steadily on custom ores—30 stamps for the Clark-Gardner and five on ore from the Consolidated Gregory mine.

We learn that the parties who are working the Gilpin county tunnel, Enterprise district, have struck a fine vein of blue sulphurets and galena mixed, which averages 14 inches in width.

Mr. Teats has made arrangements to treat twenty tons of Hoosier ore at the California works. It will be hauled over the first of next week.

DACOTAH.

Sweetwater Mines, June 6th: The Buckeye State ledge, at Atlantic City, shows some remarkably rich ore that is full of free gold.

We were recently presented with some beautiful specimens of quartz from a new discovery on the Cariso ledge, which, for richness in free gold, we have seldom or never seen surpassed.

The Wyoming Ditch Co., after a run of two days, cleaned up last Wednesday, having taken out 25 ozs. of dust.

We hear very favorable reports from the placer claims on Rock Creek. Several companies have got thoroughly at work, sluicing with most favorable results.

Yesterday we were shown a specimen at the store of J. A. Gaston, taken from the Bohtail ledge, which, on the surface, was innocent of gold, but upon being broken open disclosed free gold in abundance. So "lousy" was it with the precious metal that everybody viewing it could scarcely believe their eyes.

In reply to the statement published generally on this coast, that the Sweetwater mines are a myth, the editor says: Notwithstanding the false reports, and willful misrepresentations, which have been circulated concerning our mines in this country, they fully come up to the expectations of all the experienced and sensible men who have come here, and taken measures requisite to ascertain for themselves the correctness of the statements, in regard to the richness and extent of the deposits of gold in this region.

Gold Hill News, June 15th: Hon. C. W. Tozier, ex-Speaker of the Nevada Assembly, writes from South Pass City as follows: The country has been very much over-estimated, and many exaggerated accounts of its richness have been circulated through the newspapers and otherwise, yet there is nothing here to go crazy over, or even get excited about. There certainly is a very large amount of quartz here, which will, so far as developed, compare favorably with the gold-bearing quartz of California, and which will some day be worked with profit, making this in due time a prosperous mining region. Of the placer mines nothing positive can be said as yet. The spring

here must come in autumn if ever, for it is winter yet, although work has been commenced on the creeks and gulches, to open and develop them. No definite results, however, have as yet been obtained, but the prospects are favorable for good average paying diggings; say from \$4 to \$8 per day, and this to a considerable extent.

IDAHO.

Owyhee Avalanche, June 13th: Webb, Myrick & Co. have resumed work on the south extension of the Morning Star. The water has been taken from the shaft on Jordan street near Webb & Myrick's bank. The shaft is already 50 ft. deep. Rich gold ore is known to exist there and doubtless it can be profitably worked.

On a recent visit to the Potosi dump, we saw some large pieces of ore which were covered with sheets of pure, bright, native silver. In other pieces could be seen free gold, and almost pure black sulphurets of silver.

MONTANA.

Post, June 5th: A correspondent writing from the Salmon mines, gives the following interesting items:

"Mining has fairly commenced" with plenty of water. The ground, generally, is paying far better than the owners expected last fall, and there are more good paying claims than was ever thought of at that time. The upper portion of Nappia's creek last summer and fall was looked upon as worthless, where to-day Douglas & Co. are making over \$50 per day to the band.

Then comes the Discovery Co., then Hart & Davis, all of whom are busy at work, and making over \$50 per day to the band. Ward's gulch, Bear Track, Sierra, Meadow Creek, Nip and Tuck, Home Stake, Smith's gulch, Arnett, and others are all paying equally as well, and some of them better. But we want men here. On Sunday last 100 men could have hired out at \$6 a day or \$7 a night. We have scarcely men enough to work the day "shift," and yet every one is anxious to work the ground night and day, if they can get hands.

New diggings have been struck on a bar of a stream emptying in the Lemhi River, that promise well. A new camp has also been struck between Leeshurg and Warren's diggings.

The First National Bank, on Wednesday, cast gold bars which weighed 1,682 oz., of the value of \$31,047 in gold coin, equivalent to \$45,000 in currency.

Last evening we were shown another huge brick of 800 oz., representing \$14,400 in coin and about \$21,000 in currency.

Twelve companies are working bed-rock flumes on Elk Creek, commencing on the discovery claim and running a distance of five miles. About 200 men are employed on the creek. The ground is yielding better than ever before and is sufficient in extent to furnish paying diggings for the next five years.

The Argenta Anaconda silver ledge is proving up finely. Some 12 or 14 tons of ore have already been extracted.

Mr. Esler has in his cupel, now undergoing the process of cupellation, something over 10,000 pounds of metal.

Some of the miners lately petitioning for rain are now praying for it to cease. Below town many have been drowned out, the water, of which there is now more than an abundance, in many instances washing into and filling up the pits and ditches. Some parties who have been stripping ground have had to quit on account of the inundation.

The St. Louis and Montana Co's mill is now running day and night. There are seven feet of solid quartz on the north end of the Hope lode that will average \$100 per ton.

NEVADA.

Aurora Union, June 13th: Several miners in from Bodie report mining operations to be in a flourishing condition. There are but a few miners in that camp at present, and the greater portion of them have been employed taking out ore and are now making preparations to crush in arrastras the ore they have now on the dump. Some fine ledges have been opened lately, and all are doing well.

Humboldt.

Unionville Register, June 13th: We are informed that the Golconda ore is now paying handsomely, and that Mr. Negus is clearing \$300 per day.

Robert McBeth and Geo. W. Fox have, at last, found a quartz ledge, the Little Giant, at Battle Mountain, which is undoubtedly one of the best in Nevada. They have been engaged for some months in developing and opening out their ledge, and the result is certainly gratifying. The first working of four and one-fourth tons of ore from the surface, yielded at the rate of \$187.77 to the ton. The ore was not so-

lected, for no eye could distinguish the rich from the poor. It was taken from the surface and hauled to the Negus mill at Fairview, treated and the crude bullion sent below, and the result returned properly authenticated. Since then they have been constantly bailing and working the ore with even superior results to this. The ledge is large and well defined, showing satisfactory evidences of its being a true and lasting vein, while any distinction in the character of the ore between the walls would be impossible. It has been visited by numerous competent judges, who all concur in its being one of the most remarkable metallurgical phenomena ever discovered. Experts have worked the ore for self-satisfaction by mill process in pans, and have never failed to obtain silver in astonishingly large quantities.

There is at present exposed to view in the Arizona mine, a sufficient quantity of ore to feed a 20-stamp mill one year. The ledge is $4\frac{1}{2}$ feet in width, and highly charged with the choicest ore. The new mill will be ready to start in about three weeks.

The Dun Glen correspondent writes: Our mines never looked better or really more prosperous than at present. The Humboldt Co. continue to take out very rich ore from the Monroe Series, which is sent to the Essex mill for reduction.

Same of June 20th: The mill belonging to the Montezuma Smelting Works has recently been at work reducing ore from the Chloride ledge in Trinity district, under the management of Mr. J. H. Atchison. The clean up, after a short run, was of the most gratifying character, the result being \$40 to the ton of ore.

During the last two weeks Mr. Nason has been reducing a portion of the immense quantity of litharge which has accumulated from the refining furnaces. One hundred and fifty tons of as fine lead as the market ever saw, is now stacked up awaiting transportation.

Reese River.

Silver Bend Reporter, June 13th: From Palmetto district we have the following: Work on the Kentucky is being vigorously prosecuted by double shift. The Champion at this time is producing daily from three to eight tons of No. 1 ore that with proper treatment will easily yield \$100 per ton. The company also have a 10-stamp mill in process of erection.

Just now the section known as White Pine is attracting unusual attention, and there are 200 men or upwards at work and prospecting in the locality. Many remarkable deposits of chloride ore have been discovered there which bid fair to speedily enrich the owners. We understand that the mill at Newark district is engaged in reducing ore from East White Pine which is yielding immensely. Thomas J. Tennant will erect a 5-stamp mill contiguous to the Pleasant Valley mines immediately.

Mr. Bright, agent of the Combination Co., forwarded yesterday to the Co's Treasurer in New York, 22 bars of bullion of the value of over \$21,000. The bullion averaged about 700 fine and made a fine show.

The mill of the Silver Peak and Red Mountain Co., Silver Peak district, will probably be running by the middle of July. Over 2,000 tons of quartz is now lying at the dumps of the Crowning Glory mine ready for transportation to the mill, which will yield an average of \$50 per ton gold.

A small lot of bullion was brought into town on Wednesday from Reveille district. It was from ore reduced in an arrastra by Brobandt & Co.

The Arizona claim is now supplying Antonio Borques' 3-stamp mill with all the ore it can reduce, and is paying well.

The Combination Co. are getting a large amount of ore of an excellent quality near the surface just north of and adjoining their upper works upon the Higbbridge.

A fine body of chloride ore similar to that upon Leon & Co's claim has been opened on the Belmont Co's El Dorado North. A quantity amounting to seven tons was recently worked and gave a pulp assay of \$152.50 per ton.

The Galvin mine, on Arizona Hill, is now furnishing some splendid ore, and at the depth of 90 feet the ledge bids fair to rival the more noted ones of the district.

Parties have leased the Quintero mine and are now taking out ore for reduction.

Same of June 17th: The Silver Bend Co. had a lot of ore lying upon their dump amounting to 75 tons, 11 tons of which were crushed last Saturday, and gave a pulp assay of \$192 per ton.

Reese River Reveille, June 10th: We saw this afternoon, at David Lundbom's assay office, two small bars of bullion, weighing 2,275 ounces, 970 fine, and valued at \$1,601. They were the product of ore from the Hidden Treasure ledge, in Treasure Hill, White

Pine district, reduced in the 5-stamp mill belonging to T. J. Murphy and others.

June 13th: During the week 60 tons of ore from the Buel North Star mine, were sent to the Manhattan mill for reduction, the pulp assay of which ranged from \$460 to \$520 per ton! We learn that a greater quantity will be sent to the mill next week. The ore is of the finest quality, and is entirely free from base metals.

There were produced at the Manhattan mill, during the week ending this date, 22,890 ounces of crude bullion, which were melted and assayed in the office of the establishment.

June 18th: The Knickerhocker mill, near Lone, is to be set in motion immediately, and a party of men left this city this morning for the purpose of working in the mill.

Champion, June 17th: The El Dorado South continues to yield its characteristic high grade chloride ore in undiminished quantity. The result of last month's work on this mine with six men was 122 tons of ore, 48 of which were selected to constitute first-class ore, and yielded \$276 per ton. 74 tons of second-class ore—the balance extracted during the month—yielding \$252.50 per ton. The force on the mine has been increased and will show a much better result this month.

Washoe.

[In the Stock Circular, in another portion of this paper, will be found late mining news from this district.]

Virginia Enterprise, June 16th: We understand that the Empire Co., Gold Hill, have reached and are now cutting through the black dike in their drift from the 900-foot level of the Imperial-Empire shaft. In the level above the ore was found lying against this dike on its west side, and it is supposed that it will be found in the same position on the lower level. The work of hoisting ore will be resumed by the Alpha Co. in about a week. The Washoe smelting works are proving quite a success. The furnace of the company has a smelting capacity of five tons per day. They have ore that yields 60 per cent. of metal—lead and silver—and are at present engaged in erecting a refining furnace. When this is completed they will be able to separate the silver from the lead and mold it into marketable bricks. We understand that parties in Dayton intend giving the ores of the Whitman and other mines situated in Como another trial this summer.

June 17th: Nearly every mill in this city, Gold Hill, on the Carson and in the various canons, are in full operation upon ores from the various mines on the Comstock, in Flawery and Occidental districts and vicinity.

June 20th: Wells, Fargo & Co. shipped from their offices in this city and Gold Hill, during the past month, 9,079 pounds of assayed bullion, valued at \$263,246.92.

The Occidental Co. have let a contract for the running of a new tunnel 1,000 feet in length, starting at a point in a ravine several hundred feet below the dump at the mouth of their present tunnel.

The old Dick Sides hoisting-works are being removed to the Lady Bryan mine, Flawery district, where they will be set up and used in sinking a shaft.

June 21st: In the main shaft of the Sierra Nevada mine there are still 100 feet of water.

The drift from the Imperial Empire shaft is now some 20 feet into the ledge, with signs of ore in the face. The work is progressing slowly.

The Cole Co. have now out some 50 tone of ore from the rich deposit lately struck in their upper level, which will shortly be sent away to be crushed. They have worked down upon the deposit some 10 or 12 feet and find it to increase in width, it being now four or five feet wide.

Gold Hill News, June 15th: The repairs and general overhauling of the hoisting works of the Alpha mine, are nearly completed, and the machinery will be put into full operation, hoisting ore from the mine, in about a week.

June 16th: Numerous tons of selected ore are soon to be transported from the old Whitman mine, Indian Springs district, to Dayton for reduction.

There was shipped from Wells, Fargo & Co's Gold Hill office this morning, three bars of bullion, weighing 207 pounds, and of assayed value of \$5,715.16.

The Imperial Mining Co., Gold Hill, yesterday declared a dividend of \$6 per share, payable on the 20th inst.

An assessment of \$4 per share was levied yesterday on the Ophir Co.

June 18th: No great strikes of rich ore have been made as yet in either of the west drifts from the 900-foot level of the new shaft. Several small rich streaks have been encountered, however, and other indications of something good not being far off.

Mining and Scientific Press.

W. B. EWER,..... SENIOR EDITOR.

G. W. M. SMITH. W. B. EWER. A. T. DEWEY.
DEWEY & CO., Publishers.

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Canvassing Agents.

OUR FRIENDS can do much in aid of our paper and the cause of practical knowledge and science, by assisting our Agents in their labors of canvassing, by lending their influence and encouraging favors. We shall send none but worthy men.

Mr. A. C. KNOX, is our city soliciting and collecting Agent, and all subscriptions, or other favors extended to him, will be duly acknowledged at this office. Jan. 11, 1866.

Mr. C. T. RANEY is our duly authorized agent for Sacramento County. Nov. 23, 1867.

Dr. J. C. YATES is our duly authorized traveling Agent. July 6, 1867.

Mr. A. B. BUTLER is a duly authorized traveling agent for this paper. July 15, 1867.

San Francisco:

Saturday Morning, June 27, 1868.

Notices to Correspondents.

SALAMANDER.—The phenomenon of the rolling spheroids of water, when a small quantity of that liquid is spilled on a highly heated stove or other surface, has been termed by Boutigny, as the spheroidal state—a term that has been adopted by his co-scientists. It was first described by Leidenfrost, but more carefully examined by Boutigny. If a good conductor, (a sheet of metal is the best for this purpose) be heated to between 300° and 400° F., and water be allowed to fall upon its surface, the liquid does not enter into ebullition; but instead of moistening the surface, as usually occurs, it rolls about in spheroidal masses. The temperature of such spheroids never rises to the boiling point of the liquid experimented with. If the source of heat is removed, the temperature will fall until a point is reached, at which the liquid will suddenly begin to boil vehemently, and disperse itself in all directions with a violent hissing noise.

O. J. Alleghany, Sierra County.—Your query with regard to the "coloring matter" of a certain mineral (Mariposite) has already been answered. We have not a specimen of gold-bearing diorite at hand, but will endeavor to procure one and forward to your address. Diorite is a trap rock, similar to the ordinary greenstone met with in most of our mining localities. It is usually crystalline, but sometimes compact. The difference between diorite and greenstone consists in the presence, in the former, of albite in the place of feldspar, which exists in the latter. Albite is so named from *Albus*, white; it is much whiter than feldspar, but otherwise closely resembles it. The constituent difference between albite and feldspar is in the relative amount of potash and soda which they respectively contain. Feldspar usually contains about ten per cent of soda, with a mere trace of potash; while albite usually contains about ten per cent of potash with a mere trace of soda.

J. C. La Porte, Sierra County.—The specimen which you forwarded to us accompanied by a note, from its general appearance seems to consist merely of a crumbly aggregation of pure sand, and was probably so purified by the infiltration of water which has carried off the original accompanying ingredients, as oxide of iron, etc. It may, however, have originated as a silicious precipitate. If we were made acquainted with the mode in which it exists *in situ*, we would more understandingly be enabled to form an opinion of its origin. To ascertain its exact component parts would require a troublesome analysis. From the appearance of the sample forwarded, we think it might probably prove a very desirable sand for making glass.

EXPERIMENTER.—In the intermixture of gases, the diffusive volume has no necessary relation to the chemical equivalent or atomic weight of the compound or simple gas; for it has been observed, that the rates of diffusion are dependent upon the relative density of the gases compared, quite irrespective of their combining proportion. In liquids, a similar disconnection is found to obtain, between the chemical equivalents and the diffusive volume.

DARIEN SHIP CANAL.—Our correspondent from Hornitos, who makes inquiries about the Darien Ship Canal, shall be fully answered in our editorial columns next week.

Manufactures as a Means of Wealth.

Manufactures are the surest means of wealth to any nation. The grand effort of all who desire to build up a State, and render it permanently prosperous, should be directed to the encouragement of "Home Manufactures." It is to manufactures and commerce that England owes her wealth and power. English statistics show that the percentage of profits on capital invested in manufacturing enterprises, greatly exceeds the same amount of money invested in agriculture or any other enterprise of national extent. The New England States of our own country also owe their remarkable prosperity to their manufacturing enterprise. The same is true of the Middle States. The great West is prosperous, but only for the reason that she feeds the manufacturing population of the Eastern and Middle States. Agricultural communities are nowhere sufficiently prosperous to accumulate wealth to any considerable extent, except where they are the immediate neighbors and feeders of enterprising, manufacturing and commercial countries.

We last week devoted a column to discussing the new tendencies of manufacturing enterprise, showing that the policy which has hitherto obtained of separating agriculture from manufactory industry—of devoting barren and sterile regions of country exclusively to the latter, is no longer applicable to the present advanced condition of the arts. The introduction of steam and cheap fuel, now enables us to take our workmen into those regions where the cheapest food, and consequently the cheapest labor, can be found, instead of to barren regions with no advantages but rocky ridges plentifully supplied with waterfalls.

These facts should be carefully noted by San Francisco capitalists; for under such conditions this city must become the center of the manufacturing industry of the Pacific Coast. Cheap food, cheap labor and cheap fuel, are, and ever must be, concentrated here. Plentiful as may be the water power of the mountains, it can never compete with steam on the sea coast. The facts cited by us last week are conclusive on this point.

Thousands of laborers are now pouring in upon us, mostly from the crowded cities of Eastern industry. What shall we do with them? We want them here; they wish to come. To keep them and encourage a continuance of such immigration, we must find employment for them. We have already shown that this city is the place to furnish that employment. True, we have an abundance of land where many may go; but our foreign market for grain is not always sure. We must create a home market. How can we do this? Only by the establishment of home manufactures. Our distance from other manufacturing centers is a full offset for the increased cost of fuel here. The considerations which we urged last week, and which are being accepted by Western capitalists, are especially applicable to California. Food can be produced in this country for a less amount of labor than in any other part of the world, and there is no reason why we should not be exporters instead of being importers of manufactures.

We are not proposing an untried experiment. For many years the mountains of California yielded fabulous amounts of gold; but where did it go? How small a proportion of those millions wrested from our soil and rocks by the hard labor of our miners, remained to enrich the State? California enriched the world, but remained poor and impoverished herself. Everything that we consumed came from abroad, and the very ships that brought it were built, owned and manned by people abroad. We had no agriculture, no commerce, no man-

ufactures of our own. We simply dug gold and sold it for food and clothing. It took just about all we could dig to feed and clothe us; very little was laid by for our future wants.

By and by the happy thought occurred that California soil might yield something else than gold; a few enterprising persons engaged in agriculture; the experiment succeeded and the business increased until California now sends immense annual fleets, loaded with wheat and flour, to feed the manufacturing people of our Eastern States and Great Britain.

The same experiment was subsequently tried in manufacturing industry—cautiously at first, but gradually enlarging and extending—until our manufactures now amount to many millions of dollars annually. Woolen and cotton goods, boots, shoes, candles, fuse, barrels, buckets, boxes, cordage, chemical materials, oil, paper, powder, pickles, starch, soap, flour, furniture, carriages, brooms, wines, building materials of every description, of wood, iron and marble, machinery of all kinds, etc., etc., are now counted among our home manufactures. All these branches of manufacture, we are happy to say, are steadily gaining ground. We have laid the foundation for a magnificent future; we have ample materials at home, cheap food, plenty of labor seeking our shores, and a fair prospect of an ultimately low-priced supply of fuel; and we have as good mechanics and artisans as the world can produce.

By this fortunate change in our industrial programme, we are now keeping at home millions upon millions of gold that formerly went eastward. Capitalists are beginning to see and acknowledge this beneficial change; but our commercial reports still show, by their voluminous lists of "Merchandise on the Way to this Port," that there is yet room for further investments in this direction; that many more millions of dollars might be saved to the State; and that there is no present danger that we shall be "too fast" in the development of our manufacturing enterprises. Nor will there be any danger in this direction until we cease importing, and turn the current the other way.

We are talking a great deal, at this time, about encouraging immigration to California. The best way to effect that is to create a demand for labor; no immigration will be healthy without such a demand. Forced immigration will soon put a stop to our increase from abroad. Every man that comes here and fails to find employment will, by his letters, prevent his friends from following him. On the contrary, every man that finds employment and sees the same for others still, will become voluntarily an active immigration agent, who will be far more effective than one specially commissioned and paid for that duty. The good effects of our "Labor Exchange" will soon be felt abroad. When it is universally known that the demand for labor in San Francisco is greater than can be supplied by a free Labor Exchange, two lines of weekly steamers and daily railroad trains from New York will scarcely be able to satisfy the demand for passenger transport to this city. Every appearance indicates that with the opening of the overland railroad there will commence a rush of immigration to this coast, fully equal to that of the early years of the gold discoveries. Let our capitalists see to it that employment is furnished for the needy and willing hands that are coming. It will pay in a two-fold manner—by the increased value it will give to real estate, and by the direct profit on the employment of such labor in manufacturing enterprises. All cannot find employment in agriculture. We must create a home demand for agricultural productions to increase that branch of industry even much beyond its present limits. Let our capitalists bear these facts in mind, and

prepare in season to meet the emergency we all so much desire.

California, and especially her commercial emporium, occupies a position unrivalled in natural advantages in the entire circuit of the globe; but we can never attain our natural destiny except by a proper exercise and improvement of our advantages. We must first make ourselves as independent as possible of the world, by our home productions; then we may aspire to a high and important control of its commerce. The idea which has been shadowed forth of our future is a gigantic one. "Time was," says a late European writer, "when a small island in the sea sufficed for the commerce of the civilized world. Then came the Atlantic. Now, the vast Pacific alone will content us, and the Paradise of wealth and the golden age of commerce, which the past persisted in placing in the East, is rolled over to the West." We of the present day will soon be witnesses to the fact that civilization and enterprise has completed the circle of the earth, and that the Pacific Ocean has become the Mediterranean sea of the world!

Exhibition of Minerals.

It is especially desirable that the exhibit of ores, precious metals, minerals of every variety, fossils and curiosities, at the Mechanics' Fair for 1868, should prove worthy of the vast and rich mining field represented. To forward this object we have concluded to gratuitously take charge and properly exhibit all cabinets and specimens which may be sent to our care, with instructions. Full information should be sent with each parcel, as we desire to publish a catalogue list in the Press of all that is received. Packages must be prepaid, and advices sent by letter in the mail or express. Address, DEWEY & Co., Mining and Scientific Press, S. F.

OREGON IRON.—A small sample lot of iron was received in this city, last fall, from the Oregon Iron Works, which was distributed among several of our foundries, where it gave very general satisfaction as to quality. During the present month, two regular invoices of this iron have been received, and in all, 1,000 tons are ready to come forward. The company evidently mean business, and will hereafter make regular shipments to the full capacity of their works. The manufacture of pig iron on this coast is a want which has long been felt, and although this establishment will be able to supply only a small portion of the demand, its successful inauguration will eventually lead others into the same manufacture, until we shall be placed quite independent of the East for this heavy and important item of consumption. The rolling mills of this city are nearly ready to go into operation. These two enterprises will form important additions to our rapidly increasing industrial productions. Their successful establishment will make still more apparent our need for converting furnaces, so that we may make our own wrought iron and steel. Each will be dependent upon the other, and will unite in a demand for a thorough examination and development of our immense natural resources for the production of raw iron. The time is not far distant when we shall manufacture the chief portion of our steel, and all our iron—bar, railroad and pig—from our own mines.

COLLAPSING HOOP SKIRTS.—At the Mechanics' Fair, in Springfield, Mass., last February, one of the novel inventions exhibited and favorably reported was Brewster's "Eureka" self-collapsing hoop skirt. It has the appearance of being just the article desired for ladies' wear in crowded places—cars, carriages, arm chairs, etc. We would advise some of our enterprising merchants to correspond with the owners of the patent right, Messrs. Labaree Bros. & Co., Springfield, Mass., and make a "hit" by introducing the new article in this State.

The Botany of California.

It will be perceived from the following letter from Professor Brewer, that the expected work on the Botany of California, upon which that gentleman has been for several years engaged under the direction of the State Geological Survey, will not be withheld in consequence of the refusal of the Legislature to continue that survey. The Professor has determined to go on with that work, as "a labor of love." The botanical field of California is one of unusual interest, and the world of science will be greatly indebted to Professor Brewer for the determination hereinbelow expressed:

EDITORS OF PRESS:—I have lately received several letters of inquiry from your State, relating to the volume on the Botany of California, which I am preparing. These letters I ask leave to answer through your paper. I have not been able to confer with Professor Whitney since the action of the State Legislature pertaining to the Geological Survey, and do not therefore know the exact state of affairs; but I wish to state that I still intend to get out a volume, descriptive of all the plants known in the State. The work of its preparation is a vastly greater one than I supposed when I began it; but I expect to carry it through, and am at the present time hard at work at it. It is a "labor of love," pursued for science's sake; for even should I get the amount I had expected to receive for it, the sum would not pay the actual expenditure of money I have made, and must make to complete it, much less to compensate me for the labor it costs. No fears need be entertained that the work cannot be published when prepared, even though the State lacks the necessary public spirit. I hope to be able to do it at my own expense; if not, it is of sufficient interest to science for learned societies here or in Europe to publish it. I have already received offers to this effect, but shall not accept such, unless as a last resort. Yours truly,

WILLIAM H. BREWER.
Cambridge, Mass., May 30th, 1868.

A MACHINE shop is to be built at Mansfield, Ohio, to have a capacity for the production of 15,000 threshers and separators annually.

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Capitalists who control Boot and Shoe Factories at present monopolize the trade, on account of the price of the American and French Screw Apparatus, each costing from one hundred and twenty-five (\$125) to four hundred dollars (\$400), leaving them out of the reach of the poor man, whilst LUMSDEN'S CALIFORNIA APPARATUS

For the Making Up of Screwed Boots,

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Is sold from \$33 to \$50.

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With this cheap and valuable invention, Boots and Shoes can be made on lasts, with or without being iron-plated. Every bootmaker now doing business on the Pacific Coast can have one. The apparatus is small and strong, and with care will last a life time.

Each one is warranted. Orders promptly attended to.

Work done at the Vulcan Iron Works.

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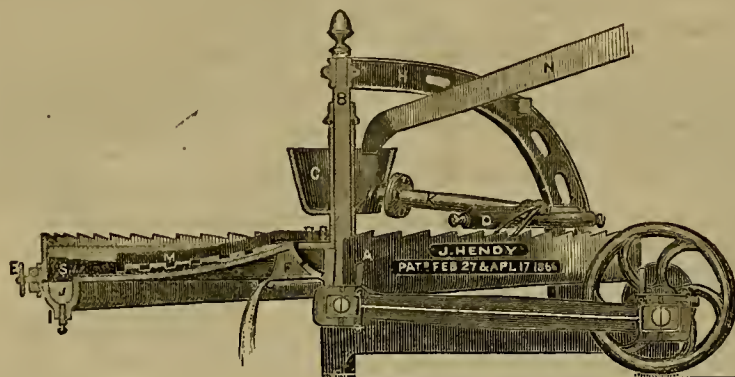
NICHOLAS LUMSDEN, Inventor,
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ATTORNEY AND COUNSELOR AT LAW,
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A salesman to travel for a manufacturing company and sell by sample; a rare chance to engage in a profitable business. Cut out and return this advertisement to F. DEWING & CO., 418 Montgomery street, Agents for the Company?
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HENDY'S LATEST IMPROVED PATENT SELF-DISCHARGING SULPHURETS CONCENTRATOR.



FOR GOLD AND SILVER ORES,

With Revolving Stirrers and Rotary Distributor.

Can be seen in operation at the Union Iron Works, corner of Mission and First streets. This machine is designed for saving finely divided Quicksilver, Amalgam and Gold from the sands, and for concentrating and saving the Sulphurets. Any person of ordinary experience with Quartz Mills can readily fit them up and run them.

Those in want of Concentrators would do well to visit some of the quartz mills that have Hendy's Patent Concentrators in use, and satisfy themselves before purchasing other Concentrators or pretended merit. THEY ARE WARRANTED TO WORK SATISFACTORILY.

Directions for Operating Hendy's Concentrators:

The sulphurets are drawn off while the Concentrator is in motion, in the following manner:
FIRST—In setting up, set the pan, A, level by the inner rim, near its center.
SECOND—While in operation, keep the Pan, A, about half full of sulphurets. [See Figure 2, marked S.]
THIRD—Open the gate, E, sufficiently to discharge the sulphurets as they accumulate over the amount above mentioned.
FOURTH—The crank shaft to make 200 to 220 revolutions per minute.

References:

Reference is made to the following mills, which have HENDY'S CONCENTRATORS in use:

EMPIRE MILL. (8 Concentrators).....	Grass Valley, Nevada County.
NORTH STAR M. & M. CO. (8 Concentrators).....	Grass Valley, Nevada County.
NORRIDGEWOCK MILL. (2 Concentrators).....	Grass Valley, Nevada County.
VALENTINE & CO. Commercial Mill (3 Concentrators).....	Nevada County.
HUMBOLDT CANAL CO. (1 Concentrator).....	Humboldt County, Nevada.
ROBINSON & McALLISTER M. & M. CO. (3 Concentrators) Hunter's Valley, Mariposa County.	
MIDAS MILL CO. (4 Concentrators).....	Virginia, Montana.
GOULD & CURRY G. & S. M. CO. (4 Concentrators).....	Virginia City, Nevada.
VULTURE CO. (8 Concentrators).....	Prescott, Arizona.
NOYES & CO'S MILL. (2 Concentrators).....	Prescott, Arizona.
LUCY MINING CO. (3 Concentrators).....	Owyhee District, Idaho.
GUADALUPE & SACRAMENTO G. & S. M. CO.....	Sinaloa, Mexico.
EL TASTE CO. (2 Concentrators).....	Sonora, Mexico.
B. F. BROWN (1 Concentrator).....	Melbourne, Australia.
JAMES HENTY & CO. (1 Concentrator).....	Melbourne, Australia.

And in use in many other parts of this coast.

The following give additional proof of the increasing popularity of the machine:

SAN FRANCISCO, October 10th, 1867.

J. HENDY, Esq.—Dear Sir:—To your request for an expression, in writing, of my opinion in regard to the merits of your Concentrator, I reply, that I consider it the best machine for saving quicksilver and amalgam, and for concentrating sulphurets, that I have ever used, or seen used. I may add, that I could give you no stronger proof of this than to order, as I did, six more of them, after a trial of one for several months. I shall take pleasure in showing the machine in operation to any one interested, who will call at the mill of the Empire Company, in Grass Valley. Yours,

S. W. LEE, Supt.

NORTH STAR MINE, Grass Valley, Feb. 26, 1868.

J. HENDY, Esq.—Dear Sir:—In answer to your request, I give my opinion in regard to the eight Concentrators we have at work. We have had one at work on blanket washings for the past three months, and it has proved highly satisfactory in saving sulphurets and amalgam, that in past years we have been losing. Of the other seven, six are taking the pulp from the batteries, and the remaining one concentrating from the six, which, when thus reconcentrated, yield 95 per cent. of pure sulphurets. Respectfully, etc.

W. H. RODDA, Supt.

An Additional call for Hendy's Concentrators

Has just been complied with, and the machines shipped to Grass Valley, Nevada Co., Cal., viz: One machine for the Empire Company, and two for the North Star. Hendy's Concentrators have been in constant use in these mills for more than eight months, and these orders completed a set of ten machines for each mill. The North Star Company have just added eight new stamps to their machinery.

Four Concentrators have been forwarded to the Vulture mine, in Arizona, which makes eight for that mill. The additional order for four machines was made after a thorough trial, which proved their superiority over all others. [See Mining and Scientific Press of Dec. 14th.]

CAUTION.

All of HENDY'S PATENT CONCENTRATORS are marked thus:

"J. HENDY, Patented April 17th, 1866, and May, 15th, 1868."

Orders or letters of enquiry, address,

JOSHUA HENDY, Patentee,

June, 1868.

Union Foundry, San Francisco.

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Embracing ALL SIZES of
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Of every description and size.

Orders addressed to PACIFIC ROLLING MILL and FORGE CO., Post Office, San Francisco, Cal., will receive prompt attention.
The highest price paid for Scrap Iron. 9v14r3u9p

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California Pioneer Fuse

MANUFACTURING COMPANY,

MANUFACTURERS OF

HOSE AND TAPE FUSE,

A New and Superior Article for Blasting in very wet ground, or under water.

Great difficulty has heretofore been experienced by miners, and others in the use of Fuse, which has been subjected to deterioration from exposure to dampness during transportation, or during the great length of time which has passed between its manufacture and use. In addition to great painstaking in the manufacture of the California-made Fuse, the above and many similar objections are entirely obviated, and the operator can always depend with certainty upon the burning of his fuse.

It is often the case that extra lengths are required, as exploding tunnels, etc., longer than is furnished in the imported article. Fuse of every desired length or size can be made to especial order, at the above manufactory.

Manufactory, - - - Potrero, San Francisco.
JOS. POWNING, Sec'y. JAS. EVA, Supt.
17v16-3m1p

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This department of Yale College, instituted in 1840, and endowed with the National Land Grant in 1865, furnishes advanced instruction in the various branches of Mathematical, Physical, and Natural Science.

The School is under the direction of the President of the College, a Board of thirteen Professors in different specialties, and six assistant instructors.

Regular courses of study, leading to the degree of Bachelor of Philosophy, conferred by Yale College, are arranged as follows: 1—CHEMISTRY AND MINERALOGY. 2—CIVIL ENGINEERING. 3—MECHANICAL ENGINEERING. 4—MINING ENGINEERING AND METALLURGY. 5—AGRICULTURE. 6—NATURAL HISTORY AND GEOLOGY, and 7—SELECT COURSE.

Advanced students are also admitted to optional courses, and if already College graduates, are received as candidates for the degree of Doctor of Philosophy.

Tuition, \$125 per year of forty weeks.

The Libraries, Museums, Laboratories and Apparatus, accessible to students, are various and expensive.

For copies of the Annual Circular and Report, letters may be addressed to the "Secretary of the Sheffield Scientific School," New Haven, Conn. 13v6-1y16p

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ors, and employers of all descriptions of labor, are
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13v16-3m **H. C. BENNETT, Secretary.****HOT CAST PORCELAIN.**—Our readers will
recollect the notice given in a former article
of this new manufacture, the basis of which
is the cryolite, imported from the Greenland
coast. The following is from the New York
Journal of Commerce: "This new material is
not only extremely beautiful and very
closely resembling the porcelain imported
from France, but it is as strong as ordinary
quensware, or what is commonly called
stone china. It is capable of being rapidly
formed, while in a state of fusion, into all
the various articles of household use, such
as cups, saucers, plates, and dishes for the
dining room, as well as the less elegant
dishes and vessels for the kitchen and cham-
ber. It is also exceedingly well adapted for
tilings and floorings, and combines elegance,
cleanliness, and durability with cheapness,
costing so little comparatively with the en-
caustic tiles of foreign manufacture that an
elegant and permanent flooring may be had
for almost the price of Brussels carpeting.
It may also be substituted for window
panes, gas globes, and shades, admitting a
beautiful mellow light, and presenting as it
does a very highly polished surface on both
sides, such as will be free from the dust
which continually gathers upon the rough-
ened sides of ground glass. It is also ap-
plicable for photographic purposes, and for
architectural uses, as it may easily be
adapted or worked into any form or thick-
ness into which glass or iron can be molded.
Nor does it change color, as it fully resists
the action of the atmosphere, being per-
fectly weather-proof, which quality makes
it preferable to marble even for purposes
of interior use and decoration, as for the
exterior of buildings, where beauty, strength
and permanence are required. For wash-
boards, table-tops, mantels, brackets, and
such like it is invaluable, presenting as it
does a surface easily kept clean, and bril-
liantly polished. Considering its great
strength, the beauty of finish of which it is
susceptible, and the multitude of purposes
and form in which it can be used, this
new material is likely to occupy a wide
field."**FLEXIBLE MOLDS.**—Gelatin molds are
made for plaster castings when the details
are of such a shape that it would be im-
possible to get the casting out of the mold
when the last was not elastic. To make
them, soak glue in an equal quantity of
cold water (by weight), a little more or
less, according to the quantity of your
glue, which has to be found out by trial.
The glue will, after eight or ten hours, be
swelled and have absorbed all the water;
then melt the mass by a moderate heat and
cast your mold. Put it in a cool place for
at least twelve hours before attempting to
take it out. With such molds, when care-
fully oiled before each casting, thirty or
forty castings can be taken; or Canada bal-
sam, a solution of india-rubber in benzole,
may be added to the glue during the melt-
ing and incorporated by stirring; this will
cause the mold to withstand the action of
water better. Some glycerine added will
prevent it from drying out so soon as it
will when made out of simple glue. Some
persons add also molasses to it, and make
then a material very similar to the common
printer's roller.**THE AMERICAN IRON AND STEEL INTEREST.**
A third effort is now being made to repeal
that clause in the Pacific Railway laws
which requires the constructors to use
American iron exclusively. Senator Pom-
ero, President of one of the corporations,
made an effort in the Thirty-eighth Con-
gress to have the clause repealed, that they
might import all the iron used if it was
thought expedient. Senator Sherman made
a similar effort in the Thirty-ninth Con-
gress, but both failed. Joint resolution
263, which has passed the House, and has
just been referred to the Senate Pacific
Railroad Committee, declares that the law
"shall be so construed as to make it neces-
sary to use American iron only for all nails,
chairs, fish-bars, bolts and spikes," leaving
the corporation at liberty to import the
rails and other iron for the roads for their
entire rolling stock, and all their Bessemer
or other steel, for any purpose, including
rails.—*Washington Cor. Ledger.***ELECTRO-MAGNETIC MOTOR.**—A novel en-
gine, driven by electricity, was exhibited
before a large and intelligent audience at
the College of the City of New York on
Tuesday afternoon. If the "electro-mag-
netic" engine can be brought to do all its
inventor claims for it, the days of steam, as
a motive power, are numbered.—*Iron Age,*
May 21st.It is stated that fully eighty per cent. of
the Atlantic Cable receipts comes from the
American side.

FIRST CAST IRON PLOW.—Some of the papers have been looking up the records for the name of the patentee of the first cast iron mold boards for plows. A correspondent of the New York Farmers' Club lately stated that it was to Jethro Wood, of New York, that the first patent was granted, and that it was about the year 1823. In contradiction to this, a Pennsylvania correspondent states that he cannot now tell the exact time, but in about the year 1798 a patent was granted to Robert Smith, of Bucks County, Pa., for mold boards of cast iron, and the plows were made by the inventor and his brother, Joseph Smith. This he believes was the first of the kind used in America. Thomas Jefferson's patent was granted near the same time the Smiths obtained theirs; Peacock's a year or two later.

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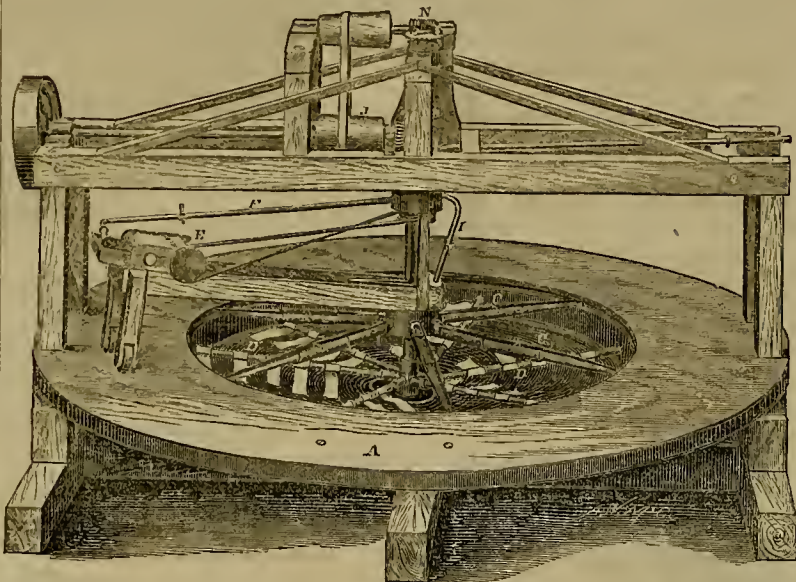
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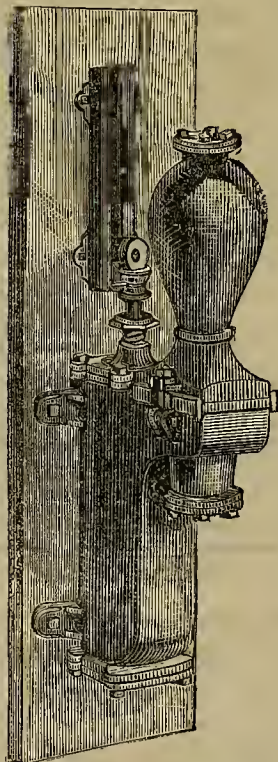
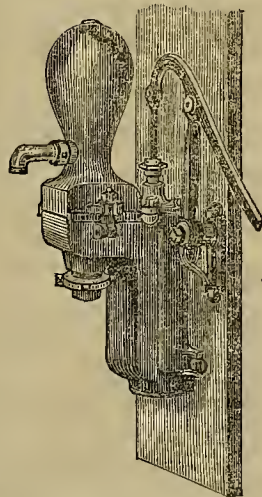
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UNION FOUNDRY,
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Highest price paid for choice lots of Ores, Sulphur, As
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Also, Amalgamation, Alloys for Journals, Type and Stamp-
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The best price given for the most rebellious or re-
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in the development of the mineral wealth of this coast.
A Full Assortment of DRUGGISTS' GLASSWARE and
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The Cleanest Burning and Most Economical
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Sold by all dealers in this city and Oakland.
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75,000 LBS. IMPORTED COPPERAS-SULPHATE
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WOODEN WAREWILLOW
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On all kinds of Ores, and particular attention

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Particular attention paid to Jobbing. All work warranted
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AGRICULTURAL IMPLEMENTS,
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Doors and Window-Blinds or Shutters,
BURGLAR-PROOF
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Wrought Iron Girders and Beams,
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AT WHOLESALE AND RETAIL.
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Our wholesale House, 628 Commercial street, extending
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FROM THE FIBER OF THE COCOANUT—the best
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The following are some of the advantages which it pos-
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Goods shipped to all parts of the State. Orders re-
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SUPERIOR BLASTING AND SPORTING GUNPOWDERBlack Diamond, in 1 lb. canisters.
do do in 5 lb. canisters.
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Blasting and Mining Powder \$2.50 per keg.
Safety Fuse and Shot for sale by
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A New Invention.Just received, an invoice of these UNRIVALED SHOES,
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All Nervous and Chronic Diseases in general, and affliction
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reserved for his own use. The nature of
this improvement consists in lining the en-
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NEW YORK, JAPAN AND CHINA.LEAVE WHARF, CORNER OF FIRST AND
BRANNAN streets, at 11 o'clock A. M. of the
following dates, for PANAMA, connecting via Panama Rail-
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PANAMA for NEW YORK.
On the 6th, 14th, 22d and 30th of every month.
Steamer leaving San Francisco on the 6th touches at
Manzanillo. All touch at Acapulco.
Departure of the 14th is expected to connect with the
French Trans-Atlantic Co.'s steamer for St. Nazaire, and
English steamer for South America. Through tickets can
be obtained.
Departure of 14th is expected to connect with English
steamer for Southampton and South America, and Australia,
and P. & E. R. Co's steamer for Central America.
Through tickets can be obtained.

STEAMERS FOR JUNE, 1885.

The following Steamships will be dispatched on dates as
given below:
June 6th—CONSTITUTION.....Capt. ———
Connecting with HENRY CHANCEY, Capt. Gray.
June 13th—GOLDEN CITY.....Capt. Wm. F. Lapidge,
Connecting with OCEAN QUEEN, Capt. Bradbury.
June 22d—GOLDEN AGE.....Capt. E. S. Farnsworth,
Connecting with RISE OF STAR, Capt. Conner.
June 30th—SACRAMENTO.....Capt. Wm. H. Parker,
Connecting with ARIZONA, Capt. Maury.Cabin passengers berthed through. Baggage checked
through—100 pounds allowed each adult.
An experienced Surgeon on board. Medicine and attend-
ance free.These steamers will positively sail at 11 o'clock. Passen-
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o'clock.Through Tickets for Liverpool by the Cunard, Inman and
National Steamship Lines can be obtained at the office of
the P. M. S. Co., San Francisco, where may also be ob-
tained orders for passage from Liverpool or Southampton
to San Francisco, either via New York or St. Thomas—if
desired an amount of \$10 to \$20 will be advanced with the
above orders. Holders of orders will be required to identify
themselves to the Agents in England.The Steamship GREAT REPUBLIC, Capt. S. Doane, will be
dispatched June 3d, at 12 o'clock, noon, from wharf corner of
First and Brannan streets, for YOKOHAMA and HONG-
KONG, connecting at Yokohama with the steamer COSTA
RICA for SHANGHAI.For Merchandise and Freight for New York and way
ports, apply to Messrs. WELLS, FARGO & CO.
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These Machines Stand Unrivaled.

For rapidly pulverizing and amalgamating ores, they have no equal. No effort has been, or will be, spared to have them constructed in the most perfect manner, and of the great number now in operation, not one has ever required repairs. The constant and increasing demand for them is sufficient evidence of their merits.

They are constructed so as to apply steam directly into the pulp, or with steam bottoms, as desired.

This Amalgamator Operates as Follows:

The pan being filled, the motion of the mullor forces the pulp to the center, where it is drawn down through the aperture and between the grinding surfaces. Thence it is thrown to the periphery into the quicksilver. The curved plates again draw it to the center, where it passes down, and to the circumference as before. Thus it is constantly passing in a regular flow between the grinding surfaces and into the quicksilver, until the ore is reduced to an impalpable powder, and the metal amalgamated.

Settlers made on the same principle excel all others. They bring the pulp so constantly and perfectly in contact with quicksilver, that the particles are rapidly and completely absorbed.

Mill men are invited to examine these pans and settlers for themselves, at the
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PRICES REDUCED!

MACHINES OF ALL SIZES FOR SALE

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All kinds of

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Windmills, Horse-Powers and Pumps.

Has been removed from the old

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Hunt's Patent Wind-Mills, Tread

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Pumping Machines and general

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Also, Water Tanks of all sizes. Having put up large new buildings specially for my business, with greatly increased facilities in the way of room and steam power, I shall be able to build everything in my line at greatly reduced rates.

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Have proved themselves a superior substitute for Wood and Coal Stoves, in that they work quicker, are neater, make and burn better, and are more ECONOMICAL generally. They are portable, can be used in any room, with or without chimneys, as they emit no smoke, soot or ashes. There are nine different sizes, designed for all purposes, and other incandescent purposes—as well as for cooking. They are perfectly safe.

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2v16-3m

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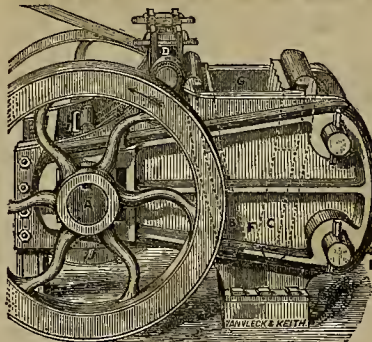
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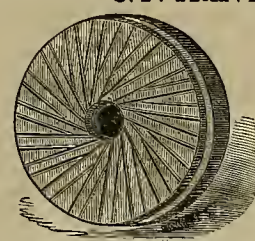
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12v13-1f

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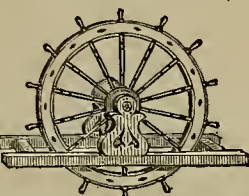
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DUTCH ANCHOR BOLTING CLOTHS. Mill Picks, Mill Picks Dressed, Mill-Stones Repaired and Rebuilt; Mill-Stones Balanced with Fellenbaum's Patent Balance, of which I am sole Proprietor for California, Oregon, and Washington Territory. C. F. TRAVIS, 109 Mission street, San Francisco.

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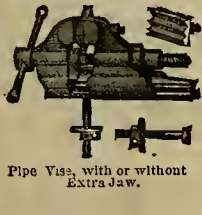
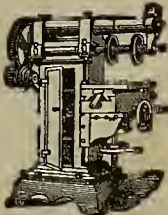


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6v16-3m

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FOR THE MAKING OF

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HOME-MADE BAROMETER.—The Boston *Journal of Chemistry* gives the following directions for constructing a cheap and efficient barometer:

Take two sheets of pasteboard of any convenient size, say three feet long by two feet wide. Bring the ends together and glue or paste them tight, each sheet by itself, and they will look like two pieces of paper stovepipe. Cut thin, round boards exactly to fit in the ends of these paper cylinders; carefully glue or nail them tight. Now you have two air-tight paper drums, with wooden heads. Take a pole of any length; let one drum be fastened to each end of the pole. Now balance this pole in the middle. Then bore a gimlet through the end of one drum, and you have a good barometer. One drum is air-tight; one has a hole in it; so there will be more or less air in one drum than there is in another, according as the surrounding air is dense or rarefied. Consequently, in dense or heavy air, the tight drum rises, while the one with a hole in it goes down. Have something you can slide through the bar, to keep it nearly level. Mark, if you please, figures along the pole, to show how far you have moved this.

UTILIZATION OF WASTE.—The following is from an article on the above subject in the London *Quarterly*: "Gas-tar, an ammoniacal liquor from the gas-works, not many years ago formed one of the most repulsive nuisances known to manufacturers. It was either thrown into the river, where it floated in ghastly blue patches, under the name of Blue Billy; or, as at Edinburgh, was conveyed away stealthily at night, and emptied into the sea. These offensive products have within these last few years been distilled and transferred into a number of liquids and solids, all of which are more or less valuable. The gas-tar, a material with soiling powers unequalled, and with an odor that is unapproachable, yields benzol, an ethereal body of great solvent powers, which forms the principal constituent of 'benzine,' the most effectual remover of grease stains known, and generally used to renovate kid gloves. Benzol produces, with nitric acid, nitro benzol, a body resembling in odor bitter-almond scent, which is largely employed in perfuming soap. Could any two products appear more antagonistic to the substance from which they spring?"

GLAZING IRON VESSELS.—Of the various materials proposed for this purpose, says the *Artisan*, a mixture of oil and minium of iron (peroxide of iron mixed with alumina) is entitled to preference. After having thoroughly pulverized the minium, it is mixed with linseed oil, rendered pasty with manganese. This mixture is applied to the iron surfaces after these have been carefully cleaned, and deprived of rust by means of pumice-stone.

The same journal has the following: A recent English patent for "improvements in the production of a glazed or vitrified surface on cast iron or other cast metal" sets forth the following method: In producing castings of iron or other metal, the mold and any core which may be employed, or either or part thereof, is coated with powdered glass, or it may be furnace cinder or enamel, or other material capable of being vitrified by the heat of the melted metal when it is poured into the molds, so as to form a glaze or enamel on the surface of the casting.

BLACK DYE FOR WOOL.—A valuable aniline dye for wool of a beautiful solid black, which resists all the agents that usually discharge the color of black cloth, has just been announced. The yarn or cloth is first steeped for an hour in a bath nearly at boiling heat, composed of two pints of water, seventy-five grains dichromate of potassa, forty-six grains sulphate of copper, and thirty-one grains sulphuric acid. After this the material is well washed, and then plunged in a solution of oxalate of aniline of one or two degrees of Beaume's hydrometer.

MEXICAN SILVER MINES.—A mine in the neighborhood of Charcas, worked at an expense of \$170,000, since the first of January, 1861, has yielded silver during that time to the value of \$5,460,000. The Santa Rosa Mining Company is drawing out \$95,000 worth of ore per week. Its works employ 460 hands, at the rate of thirty-seven cents per day, and the expenses amount in the aggregate to about five per cent. of the value of the silver taken out.

The boilers of the Trinidad lumber mills exploded on the 15th instant, killing one man and wounding several others.

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British Columbia Mining Summary	304 384

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